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THE PRINCIPLES OF
RATIONAL EDUCATION



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THE PRINCIPLES OF RATIONAL EDUCATION

BY

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PREFACE

I HAVE myself suffered but little from the disadvantage of a Public School and University education, and to this fortunate escape I attribute whatever success I have achieved in life, and whatever of originality, sound reasoning, and decent English there may be in my published works. I look with no selfish complacency upon my good fortune. I hear with anguish the wails of my academic friends, who bemoan the wasted years that they spent in Public Schools and Universities, the lost opportunities, the barren grind, the senseless routine that crushed the originality out of them, and turned them into the world utterly ignorant of it and all that it contains ; unable to conduct an argument, to recognize a fallacy, or to give a rational ground for a belief ; and incompetent to write an intelligible sentence in correct English or in a legible handwriting. It is out of sympathy with the sad spoiling of the lives of dear friends that I have written this book, in the hope that it may do something to leaven public opinion, so that in years to come their grandchildren and great-grandchildren may have such sufferings in mitigated degree.

This essay had been in existence for some time as a magazine article, when the publication in the Educational Supplement of *The Times* of Sir Clifford Allbutt's admirable letters stimulated me to expand it into this small book.

C. A. M.

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THE NEGLECT OF SCIENCE

To the Editor of 'The Times.'

SIR,—Before we make a fetish of science and revolutionize our system of education, it is desirable that we should have clear ideas of what science is and of what education should do, and does. The word science in the mouths of most people stands for a superior kind of white magic. Not one in a thousand of those who use the words has any clear idea of the meaning of the words 'science' and 'scientific,' or has anything in his mind but a vague discontent and a vague aspiration.

The aims of education are, I take it, these three :—It should inculcate first, character ; second, a habit of clear thinking ; and third, a knowledge of facts. The test of this terrible war shows that in the first respect our present system of education has been generally successful, but that in instances that are numerous, though not a large proportion of the whole, it has failed. The magnificent result of the voluntary system of recruiting in the early months of the war, when the system really was voluntary, the unsurpassable courage and endurance of our Army and Navy, the voluntary self-sacrifice in a thousand ways of our men and women show beyond doubt that in an immense proportion of our population the character of our people has been well developed under the present system of education. At the same time certain conspicuous exceptions—the disloyalty of conspicuous persons, the strikes and other attempts to exploit the war for personal advantage—show that though it has been generally successful, it has not been universally successful. This is a matter that must be attended to ; but I know not how any education in science can improve it.

A habit of clear thinking may be the result of an education in science—or it may not. It does not need

much acquaintance with those who have a knowledge, even a very extensive knowledge, of scientific subjects to discover that among them may be found men as muddle-headed and as incapable of clear and accurate thinking as men in any other class of the community. Sir Ray Lankester would probably say that they cannot have been well taught, and with some reservations I should agree; but this points to the superior importance of methods of teaching over subjects taught. Much as I detest the routine teaching of the classical languages, I should prefer, *caeteris paribus*, the judgment of one who had been taught Latin and Greek on a good system to that of one who had been taught chemistry and biology on a bad system.

In the third element of education, knowledge of facts, the superiority of science is indisputable and immense; but this is the least important part of education. In the subject of medium importance, clear thinking, science is superior but much less so; and in the vital element of education, formation of character, science is of little or no value.

What is needed in education is not so much knowledge of science as scientific knowledge. Scientific knowledge, in as far as it is scientific, is more clear, more accurate, and more systematic than ordinary knowledge; but knowledge of the subjects taught under the name of science is often confused, inaccurate, and unsystematic; and then, though it is knowledge of science, it is not scientific knowledge.

One subject that Sir Ray Lankester relegates to an insignificant position I should place in the forefront of education. I refer to the knowledge and use of the mother tongue. Clear thinking cannot be attained without accuracy in the use of language—of language as an instrument of thinking and a means of expression; and exercise in clearness and accuracy of expression is itself exercise in clearness and accuracy of thinking. The neglect of this subject in our system of education is gross and unpardonable, and its disastrous effects are seen everywhere. Parliamentary draftsmen, who should be the experts

of experts in the matter, are a byword of incompetency. Politicians and philosophers are obscure of set purpose, but so low is the standard of clearness of expression that their utterances are allowed to pass without exposure. Writers and speakers of every class vie with one another in the use of language that is obscure, confused, ambiguous, and illogical, besides being often unidiomatic and un-English. It is not for its want of grace and elegance that I deprecate this practice ; it is because the confusion and obscurity of the language faithfully reflect the confusion and obscurity of the thought.

By all means let us have natural science as a prominent subject in our scheme of education ; but let us remember that the first aim of education is the formation of character ; the second aim is the cultivation of a habit of clear and accurate thought, expressed in clear and accurate language ; and that the accumulation of a knowledge of facts is but a minor matter. To put it into antique terms, it is better to be wise than learned, it is better to be good than wise.

I am, Sir, your obedient servant,

CHARLES A. MERCIER.

The Principles of Rational Education

INTRODUCTION

THE Franco-Prussian War was the occasion that induced this country to adopt compulsory education of all its children, for it was considered that the success of the Germans in that war was due, in great part, to their superiority in education. There was no very convincing evidence, even if there was any evidence at all, that the education of the Germans was superior to that of the French, nor was there any evidence that if the education of the Germans was superior, their success was due to this superiority ; but for half a century we had looked upon the French as the country in Europe best organized for war, and their defeat demanded explanation. We were not taught then, and we have not been taught since, the true principles of explanation, and therefore we seized upon anything that came handy and looked as if it might be an explanation, and accepted that with unreasoning credulity as the explanation of the German success. If we had been trained in proper methods of assigning causes, we should have found in the corruption of the French Court, consequent incompetence of the French Higher Command, and the divided allegiance and personal jealousies of the French generals, ample explanation of the French defeat, without ranging far afield to ascribe it to an hypothetical inferiority in education.

Another half-century has elapsed, another unprovoked war has been engineered by the Germans, and another series of remarkable successes in war have been achieved by them ; and again, owing to the absence of any proper

training in the assignment of causes, we range afield to discover a far-fetched explanation for which there is no sufficient evidence, rather than assign the event to causes that are known to have acted, and that are amply sufficient to produce the effect without the aid of the hypothetical cause to which we unreasonably attribute it. We attribute the early successes of the Germans to their wonderful proficiency in science ; and just as in 1871 we demanded universal compulsory education to bring us up to the level of the Germans, so now we demand universal training in science for the same purpose. There is no evidence that the Germans are more proficient than the English in natural science, nor is there any evidence that if they were, their early successes in the war were due to this superiority. The Germans are not more proficient in natural science than the English. They are very much less proficient. No great mother-discovery or mother-invention, the fruitful parent of a multitude of others, has ever been made by a German—no discovery comparable with the discovery of gravitation, of combining proportion, of the aniline dyes, of natural selection, of electro-magnetism, of the infection of wounds, and a score of other revolutionizing discoveries made by Englishmen. No German has originated any invention comparable with the invention of the steam engine, of the electric telegraph, of the telephone, of wireless telegraphy, of the sewing machine, of the spectroscope, of the telescope, of the microscope, of the aseptic and antiseptic treatment of wounds. The solitary invention of the first class that has been made by a German is that of the printing press. The solitary scientific discovery of the first class is that of the X-rays, and this was a fluke. It was stumbled on by accident. That the Germans are very proficient in appropriating and applying the discoveries of other nations must be conceded : that they have a much keener appreciation of the value of a knowledge of the natural sciences must be conceded ; but that they are pre-eminent in natural science would be contended by no one but a German.

In medicine, Germany has ten workers at research for every one that we in this country can show ; in chemistry, she has nearly forty times as many ; but in spite of this, the important discoveries made by Germans bear no comparison at all with those that are made in England and France. What superiority the Germans have is in the wider diffusion of scientific knowledge, and in the much greater value that is put upon it, especially by the governing classes. It would be difficult to find among the Government officials of Germany anyone as ignorant, not only of natural science itself, but of the value of science to the individual and the nation, as all our Government officials are. Among the lawyers, business men, and artisans who mainly compose our House of Commons there may be some who have heard, and accept, that the earth goes round the sun ; but it is very unlikely that a dozen of them could give the evidence on which the doctrine is founded, nor is it likely that any one of them has a knowledge of science exceeding this very moderate limit. At any rate, it is certain that in matters equally elementary our Government officials, high and low, have exhibited in this war the most abysmal ignorance. They have not only themselves been ignorant of such elementary facts as that cotton and glycerine are used in the manufacture of explosives, but they have not consulted those who did know, nor have they recognized that there was any advantage in knowing more.

Granting, however, that the Germans have a much higher and much more widely diffused appreciation of the advantages that accrue from a knowledge of natural science, there is no evidence whatever that this higher and more widely diffused appreciation has had anything to do with their early successes in the war, except in as far as the gross ignorance of our rulers gave them an advantage. The only applications of natural science in which the Germans have surpassed or forestalled the Allies have been in the use of poisonous gas, and in the construction of Zeppelins, and neither of these required the discovery of

any new principle in science, or of any profound knowledge of science. Any first year's student of chemistry would have sufficient knowledge to hit upon chlorine as a poisonous gas ; and if it was not first used by the Allied Powers, this was not from any inferiority of knowledge of science, but because they did not consider it playing the game to use such an expedient. Nor did the construction of Zeppelins need the discovery of any new principle or any profound knowledge of physical science. It was an obvious application of principles already well known. If the Allied Powers did not turn to the construction of airships, it was not from any lack of knowledge of science, but because they did not consider the employment of them worth while. They considered that the results to be obtained from their use would not be commensurate with their cost ; and they have been right. The Zeppelins have been a dismal failure.

From want of proper intellectual training the English people have in this war, as in the war of 1870, attributed whatever success the Germans have achieved to the wrong cause, and this is the more deplorable since the true cause stared them in the face, and could not be overlooked except from wilful shutting of the eyes or from the confirmed habit of seeking causes at random, from want of proper training in the rudiments of the art of thinking. The obvious and manifest cause of the initial successes of the Germans was in the first place their long and thorough preparation for the war, and in the second, the blindness, whether wilful or merely stupid, of our own Government. Whether wilfully or stupidly, our Government, though in incomparably the best position to discern the impending outbreak of war, since it possessed in the diplomatic service a huge machinery of information, yet failed to foresee what many people without its sources of information did foresee ; and refusing to foresee, or at any rate to acknowledge, the approach of war, it took no steps to prepare for it, and even by encouraging the Germans to believe that we should take no part in any war declared by them, took

no small part in bringing the war to pass. These are the obvious and manifest explanations of the initial German successes, and there is no need and no excuse for going beyond them and supposing a false cause in an imaginary superiority of the Germans in science. Yet it is to this cause that their successes have been attributed, and it is necessary to insist once more that the blunder, a manifest and transparent blunder, a vitally important blunder, is due to the want of a proper appreciation of the significance of cause, of what constitutes a cause, of the principles and methods on which causes should be assigned, all of which should be instilled by any method of education that pretends to be efficient, and none of which is instilled by the system of education at present in vogue. There are many defects in our present system of education. It is ingeniously and perversely wrong. It is in most respects as wrong as wrong can be. We may say of it as Dr. Johnson said of old Mr. Sheridan: 'Sherry is dull, Sir, naturally dull, but he must have taken great pains to become what we see him. Such an excess of stupidity is not in nature.' It is scarcely credible that a system of education so perversely and ingeniously wrong as ours could prevail in any moderately intelligent nation ; and of all the many and gigantic faults in the system none is greater than the complete omission of any mode of training the intelligence to recognize the sequence of cause and effect, and to attribute effects to their actual causes. In this respect we are little, if at all, superior to our ancestors of nine or ten generations ago.

There is no evidence whatever that the education of the Germans has been superior to our own or to that of the French ; still less is there any evidence that whatever initial successes the Germans achieved in this war were due in the slightest to their superiority in education, supposing they had any superiority. Nevertheless, this war, like the war of 1870, has produced an outcry for the improvement of our system of education, an outcry due to no clear perception of the defects in our system, or of the ways in which it

can be improved, but based upon a general and vague feeling of dissatisfaction, a realization that all is not well, and a desire to do something, it does not much matter what, to improve the national efficiency and prevent our being again caught unprepared by a great war. Of course, a true appreciation of the connection between cause and effect would have shown clearly enough that in order to prevent a recurrence of this disaster we must sweep away the whole brood of inept and inefficient politicians, and find a means of placing at the head of the nation men who are awake to their great responsibility and fit to govern it, instead of men who are merely interested in a sordid auction of promises to the constituencies as a means of playing a sordid game for place and power and emoluments in Parliament. This the nation is not intelligent enough to appreciate, for it has never been taught to attribute effects to their obvious causes ; but in groping blindly round for some remedy for the evils they realize, without being able to attribute them to their true causes, Englishmen have lit upon education, and are determined to reform that. The choice is not to be wondered at, for it is clear enough that a really good and efficient education must equip the young better than a bad one for the life that is before them, and the prevailing system of education in this country is so incredibly stupid that no one can become acquainted with it without desiring to see it altered. Education is therefore thrown into the pot. It is to be melted down, and cast into some new form, but into what form it is to be cast there is no general agreement, and there is not even any clear notion. There is plenty of controversy, but there is no fundamental principle on which the controversialists are agreed. In the absence of any such principle, all controversy must necessarily be barren ; and up to the present the controversy has been barren.

The controversy has raged almost entirely between the classicists and the scientists : between those who desire to maintain and continue the system of education that has

come down to us from an immemorial past, and those who desire to place in the forefront of education the teaching of natural science. Whatever their points of difference, and these are numerous enough and wide enough apart, both the disputants agree that there are but these two alternatives, that education must consist either in the teaching of Latin and Greek or in the teaching of natural science, and that there is no other way. To me this is much as if physiologists should discuss whether pork or beans should be the sole food of the populace. I think it quite possible to consider the established 'classical' education as ridiculously narrow, and limited, and false, without desiring to substitute for it an education restricted mainly to the teaching of natural science; and quite possible to regard an education restricted mainly to the teaching of natural science as narrow and limited without desiring to retain the established classical education. Nay, I regard a combination of the two as still forming a most defective and inefficient system of education. Pork is no doubt a very wholesome food, and beans are no doubt a very wholesome food, but why restrict our diet exclusively to pork and beans when there are so many wholesome viands equally nutritious and more appetizing? Moreover, pork is not wholesome for everyone, and why should everyone be compelled to eat what many cannot digest, when there are many alternative foods that are easily digestible by all? The parallel is apt and close, for, as I shall show presently, there are many people who cannot learn languages, and to attempt to teach them to these people is merely to waste time, and to inflict unnecessary suffering.

It is for the most part a sound rule of conduct to trust the expert, and therefore it would seem that in remodelling our system of education, we should take counsel of schoolmasters; but before we trust the expert, we must be sure that he is an expert in the very subject on which we consult him; and, moreover, when the expert has failed conspicuously and egregiously in his own subject, we should receive his advice with hesitation and reserve. Even if

we allow that schoolmasters and University pundits are experts in teaching, and the results of their labours scarcely warrant the supposition, still it does not follow that they are experts in choosing what is to be taught. Even in teaching, their methods are not always, or have not always been, impeccable. When I was at the Merchant Taylors' school in the early '60's, the object of education was to impart to the boys the rudiments of Latin, Greek, and arithmetic, and the means employed to achieve this purpose was incessant canings. I have never had any recollection that we were ever taught or shown how to do anything. We were told to do it, and if it was imperfectly done, as it usually was, we were caned. I have been caned on the hand until my fingers were so swollen and stiff that I could not bend them, and could hold a pen with difficulty, and then have been caned again because my copy was badly written. I have been caned for not having a school book which my parents for some reason had been unable to procure for me. We were caned for everything and caned for nothing ; but I never remember receiving a word of praise, or hearing any other boy receive a word of praise. Very likely we did not deserve it ! At any rate we never had it. There is no reason to doubt that Dr. Hessey and his subordinates considered that instruction in Latin, Greek, and arithmetic was the best possible education, or that they considered the infliction of incessant canings the best possible means of imparting this instruction. Dr. Hessey was considered in his time one of the ablest and most enlightened of schoolmasters, but I did not then consider his methods as the best possible, nor do I now consider the subjects he taught the best possible. Schoolmasters since his day have revised their methods ; but they still retain the same subjects, and extol them as immaculate and unimprovable ; and I have no more confidence that they are right in the one than that Dr. Hessey was right in the other.

Before we can profitably discuss what education ought to be, what subjects ought to be taught, and, what is much

more important, how they should be taught, we must first determine the purpose of education. I do not know that schoolmasters and University pundits are agreed upon the purpose that education should serve, nor do I know that any one of them has any definite purpose in his mind, or has ever formulated any definite purpose. Here and there we meet with an expression that seems a sort of acknowledgment that education has some purpose, but such expressions are rare, and when they are found are not always quite intelligible. Dr. Rouse, for instance, says that the purpose of education is 'to develop all the faculties of mind, body and spirit in due proportion, until all become subject to the will,' a very pious aspiration, but unfortunately an impracticable ideal, for there are faculties both of mind, such as desire, and of body, such as the vegetative or vital functions, that cannot be made subject to the will. This does, indeed, indicate a consciousness that education has, or ought to have, a purpose, but does not formulate a practicable purpose, nor a very intelligible purpose.

What then, should be the purpose of education? What end should it seek to attain? Towards what goal should the efforts of the educator be directed? This question, which no schoolmaster or educational authority has ever answered satisfactorily; which as far as I know scarcely any schoolmaster or educational authority has ever propounded to himself, I answer in the following way: Education should be preparation for life. Its purpose is to prepare the immature human being for the life he is to live when he becomes mature. It is to fit the child for the life he is to live when he shall be no longer a child. That is, to my mind, the purpose of education. That is the end to be kept in view. That is the result at which we should aim.

Art is the shaping of material to fit the purpose in view; and therefore in the pursuit of every art there are three things to consider: first, the material on which we are to work; second, the purpose we have in view; and third, the means and methods by which the material is to be treated in order to achieve the purpose. The husbandman is to

consider his land, to learn its qualities and capabilities : he is to consider the crops that he wishes to raise, their natures and amounts ; and he is to consider the means and methods that he is to employ upon his land so that he may raise the crops he wants. The sculptor is to consider his marble or his bronze, its qualities and capabilities : he is to consider the statue that he wishes to produce, its character and size ; and he is to consider the means and methods that he is to employ upon his marble or his bronze so as to produce the statue he has in his mind. Without a thorough preparation in the careful study of these three factors no worthy work of art has ever been produced or can ever be produced, and this is as true of the art of the schoolmaster as of any other. If education is to achieve a worthy result, it must be founded on a careful study, first, of the material on which the educator has to work, that is to say of the child ; second, of the result he wishes to produce, that is to say, of the kind of being into which the child is to be transformed by his efforts ; and third, of the means and methods by which this result is to be brought about—by which the child is to be moulded and modified so as to fit it for the life it is to live. These, then, are the three divisions of our task.

CHAPTER I

THE CHILD. NATURE AND NURTURE

THE child is born a bundle of potentialities, and scarcely more. It can cry, and it can suck, but these are the only faculties of conduct that at birth are more than potential. All the rest, the powers of the Moses, of the Hippocrates, of the Buddha, of the Cæsar, of the Charlemagne, the Dante, the Shakespeare, the Newton, the Napoleon, the Faraday, the Darwin, exist in that small body, dormant, latent, rudimentary, seminal, potential, capable of development into actuality, but not yet actual. By the time the child comes under the hand of the schoolmaster, certain of these potentialities are become actual, and all are advanced more or less on the way to becoming actual. It is for the schoolmaster to work upon the material thus furnished to him. He cannot create faculties any more than the husbandman can create land, or the sculptor can create marble or bronze. All he can do is to elicit, educate, cultivate, and stimulate some of these potentialities, and to restrain, discourage, dwarf, and stunt others. It is manifestly his paramount need to estimate justly the relative importance of different faculties, so that he may cultivate most sedulously those that will be of greatest use in after life ; and it is manifestly a paramount need to know whether a faculty can be cultivated, whether the rudiment of it exists and is capable of development, susceptible to stimulation and encouragement. Of what avail is it for a gardener to try to produce a certain crop by manuring and watering and hoeing the ground, when the seed has never been sown ? What manner of farmer is it that would fill the troughs in

his pigsties with swill and paste and barley meal, and overlook the fact that the sties contain no pigs? Will the utmost skill of the angler and the allurements of the most attractive flies fill the creel from a stream that contains no fish? These are the tasks that, *mutatis mutandis*, are essayed by the schoolmaster. He tries to cultivate seeds that are not in the ground. He tries to fatten pigs that do not exist. He tries to catch fish out of barren water. In other words, he tries to train faculties that children do not possess, even in rudiment. Is it any wonder that he fails? His intentions are excellent, his industry is great: his application to his task is assiduous; but he fails. The reason of his failure is patent and manifest. He has pursued a faulty method. He has tried to shape his material without studying its nature and capacities, and so of course he fails. He fails because he violates the primary canon of art—to study first of all the nature of the material on which he has to work; and thus it happens that after seven years of effort to teach boys a language, he dismisses them from school unable to speak one solitary sentence in the language they have spent some seven years in trying to acquire. Could any failure be more ludicrous, more humiliating, more sad? After many generations of schoolmasters have taught innumerable successions of boys for centuries certain languages, the schoolmasters have not yet discovered that there are some boys who cannot by any labour, by any assiduity, by any application, learn any language but their mother tongue. What a tragedy of wasted years!

When the school age is reached, the child already has immensely important faculties developed up to a certain stage, and immensely important knowledge. It has the faculty of locomotion: it can walk and run. It has the faculty of manipulation: it can use its hands for prehension and palpation. Especially important for the purpose of the educator, it has acquired its mother tongue: it can speak, and can understand what is said to it. It has the play instinct, strongly developed, that is to say, it has a

copious store of energy pressing and struggling to escape and be expended in bodily and mental action. It has already many mental faculties started upon the path of development. It has boundless curiosity: it can observe, it can desire, will, feel, reason, and remember. It has already a considerable equipment of elementary knowledge: it knows and distinguishes many of the physical properties of bodies, and can appreciate size, weight, hardness, mobility, and so forth. It has learnt of the existence of other human beings, and of other living things, and knows many of their qualities and capabilities. It attributes to men, women and children mental qualities like its own; it distinguishes between animals and plants; and so on. Above all, it has already acquired the knowledge that some acts are permitted and some are forbidden. It knows that there is a difference between right and wrong; and it knows, moreover, that it can by its own efforts alter the disposition not only of its own body, but also of objects in the world that surround and envelop it. It has learned the distinction between cause and effect. Such is the equipment of the child when it comes under the hand of the schoolmaster. This is the material that he is to mould to his purpose. But he must know more of it than this before he can operate upon it with success.

There are some faculties that are common to all children, that all possess, and that at an early age all possess in much the same degree; but all faculties are not common to all children, and few or no faculties are equally potential in all children. That children differ in degree of general ability, and that they differ in the degree and in the ease with which they acquire or develop special abilities is too patent to escape the observation of the least observant; but it is not sufficiently recognized, it is not recognized at all by schoolmasters, that there are faculties common to very many children of which other children do not possess even the rudiment, and that there are faculties which some children possess potentially, and which may in those children be developed with ease and rapidity, but of which

in other children the potentiality is but small, and which in these other children either cannot be developed at all, or can be developed only to a slight extent, and to this extent only by an expenditure of time, labour, and effort out of all proportion to the result. These special faculties that are not common to all, but are proper to some children only, are for the most part what may be termed ornamental faculties, that is to say, they have to the great majority of people but little value as aids to the struggle for existence ; and therefore there is a double reason why the cultivation of them should not be made the foundation of education for all. In its early stage, education must be alike for all children, and therefore it is clear that at this stage education should concern itself with those faculties alone that all children possess. It would be manifestly and grossly wrong to begin the education of all children alike with the attempt to cultivate a faculty which only some children possess, and which other children do not possess, even in rudiment. It seems scarcely credible, but yet this is what has actually been done, and been done universally. It is notorious that while some people are richly endowed with the faculty of music, others can never learn to distinguish between one tune, or even one note, and another ; but yet it is not so long since every girl was taught music as a matter of course and of routine, although many girls have no more appreciation of music, or capacity of learning music, than an oyster. This example makes it clear that while education can do much, there are things that it cannot do. It cannot make a silk purse out of a sow's ear. Nurture can work upon such material alone as is furnished by nature ; and to apply nurture to that which nature has not furnished is a sinful waste of time and effort and of children's lives. It is trying to raise plants out of ground in which there is no seed. It is trying to extract sunshine out of cucumbers. It is trying to grow arms and legs on a fish. Yet this is the futility on which schoolmistresses wasted the lives of generations of girls, and this is the futility on which schoolmasters are still wasting the lives of boys.

For music is not the only proper or isolated faculty, present in some children and absent in others even in potentiality. Music is but the type of a group of such faculties that have many peculiarities in common besides their sporadic appearance. If we take the musical faculty as the type, we find that it has the following characteristics: First, it is present in some persons, and in others it does not exist, even potentially. Second, when present, it is present in very unequal degree, in different persons, some having it in very high degree even in early life, of which Mozart is an instance, and others having it but little. Third, the degree in which it is present either actually or potentially, bears no constant relation to the general intelligence, or to ability in other directions. It may be present in high degree in the dull, in the mentally defective, in the imbecile, and even in the idiot; and may be wholly absent in persons of very exceptional ability, as the cases of Dr. Johnson and Lord Macaulay testify. Fourth, however assiduously it may be cultivated, and to whatever degree of development it may be brought, its cultivation does not involve or assist that of any other faculty or any other mode of ability. It stands by itself and grows by itself. It is an isolated faculty. Fifth, it has no survival value. It is a purely recreative faculty and contributes nothing towards success in the struggle for existence. It gives much pleasure, but it gives no profit. It is highly ornamental, but it is not useful. A man who possesses the musical faculty in high degree is not by reason of its possession any better equipped for the serious business of life than he who has no rudiment of it. The sole advantage that it yields to its possessor is that it gives him a means of recreation, a means of innocent recreation, and of refined recreation, but only of recreation. Sixth, the musical faculty is apt to run in families. If the parents have it, the children have it. If one brother or sister has it in high degree, the others have it in some degree. It is a family characteristic.

Another isolated faculty is the ability to play chess, and

this faculty presents all the characters that we have just found to belong to music ; for first, it is possessed by some persons, and in others does not exist, even potentially. There are some who have extraordinary ability in chess playing : there are others who can never learn the knight's move. Second, when present, it is present in very unequal degree in differing persons. Some can play twenty games simultaneously, and play them all blindfold : others can just stumble through a game after receiving a pawn and a piece from a moderate player. Third, the degree in which the ability is possessed bears no constant relation to general ability, or to ability in other directions. It may be possessed in high degree by the dull, and no great chess master has been distinguished by great ability in other matters. Moreover, persons of superlative ability in other directions have been without ability to play chess, or have possessed this ability in very moderate degree. Napoleon was a chess player, but a very indifferent chess player. Fourth, however assiduously it may be cultivated, and to whatever degree of development it may be brought, its cultivation does not assist or accompany the development of other modes of ability. Indeed, employers discourage the practice of chess playing, because it not only does not assist the development of other modes of ability, but appears actually to retard it, as is supposed, by attracting so much attention and interest, and absorbing so much mental effort, that not enough is left to serve for the cultivation of other modes of ability. Fifth, chess playing, like music, has no survival value. It is a purely recreative faculty, and contributes nothing towards success in the struggle for existence. It gives much pleasure, but it yields no profit. A man who possesses the chess-playing faculty in high degree is not by reason of its possession any the better equipped for the serious business of life. It gives to its possessor a means of innocent and refined recreation, but it gives him nothing more. Sixth, the chess-playing faculty is apt to run in families. If the parents have it, the children have it. If one brother or sister has it in high

degree, the others have it in some degree. It is a family characteristic.

So far, the musical faculty and the chess-playing faculty seem parallel to one another, and show thereby a certain kinship ; but the kinship is closer than thus appears. Not only does the musical faculty appear in one member after another of a musical family, and the chess-playing faculty in one member after another of a chess-playing family, but also the family that contains musicians contains chess players also, and the family that contains chess players contains musicians also. The two faculties are apt to accompany one another in the same person, or if not in the same person, in the same family ; so that they seem to be in this sense interchangeable. This does not always happen, but it generally happens. It is not an invariable rule, but it is a good working rule. It is generally true.

To the same group of proper faculties as music and chess playing belongs the mathematical or calculating faculty, which presents the same peculiar characters, though perhaps not in quite the same pronounced degree. The calculating faculty is never, perhaps, totally absent, but there are many persons who possess it only in its lowest minimum. For instance, J. S. Mill in his *Logic* enumerates and describes five methods of experimental inquiry, but he calls them four, and every logician who has followed him during the last seventy years has copied his descriptions and adopted his enumeration. It is evident, therefore, that logicians cannot count up to more than four ; and there is good evidence, in another part of all books on logic, to show that they cannot in fact count up to more than two. There are also many other people otherwise of good intelligence, and some of even brilliant ability in other things, who yet cannot add up a column of figures or do a simple sum in arithmetic. On the other hand, Bidder, the calculating boy, was of only moderate ability in any direction but calculating ; and the same faculty of manipulating figures, of multiplying and dividing very large sums by other large sums, of extracting roots, and so forth,

in an incredibly short time, and without the aid of written figures, has been possessed by children who were otherwise not merely dull, but actually imbecile. The cultivation of the mathematical faculty, like the cultivation of music and of chess playing, does not involve or advance the cultivation of any other form of ability. Many senior wranglers have, it is true, been men of brilliant ability in other directions, and have been highly successful in after life ; but the tests that a wrangler has to satisfy are not merely mathematical, and some senior wranglers have subsided into obscurity. Again, mathematical ability, like musical and chess-playing ability, is largely recreative, and has in most cases but little survival value. It is not wholly recreative, and has in certain cases considerable utility, but still, to most people, it has little or no survival value. It assists them but little in the struggle for life ; and it is used by many of its possessors merely as a means of recreation. Even when it is followed for the sake of utility, as it is, or may be, by the devotee of statistics, its utility is small out of all proportion to the labour involved, and it is as liable to mislead as to lead aright. Indeed the fallacious character of statistics is become proverbial, and has become more than ever conspicuous of late years. Mathematical ability is, moreover, a family characteristic. It is extremely apt to run in families ; and more, it is apt to run in the same families as music and chess playing. Music and mathematics are very often highly developed in the same person, and still more often are developed in different members of the same family. If one member of a family is a good musician, it will certainly be found that in other members of that family either the musical, the chess-playing or the mathematical faculty is well developed ; and often each of them, or two or more of these faculties are found in different members of the same family.

When we consider all the qualities that characterize this group of faculties, I think it will be conceded by any reasonable person, first that they form a natural group or family, and second that the cultivation of such faculties

should not be made the staple or groundwork of education. If a considerable proportion of children do not possess the rudiment of a faculty, the cultivation and education of that faculty should not be made the primary effort of education for all children, irrespective of whether they possess it or no. If the cultivation and training of any one particular faculty has no effect whatever in assisting the development of other faculties, surely it is better to devote our educational efforts to the education and training of some other faculty, whose development will carry forward along with it the development of other faculties. These seem to me to be truisms so manifest, so patent, so unanswerably true, that no argument is needed to enforce them, and that no argument could enforce them. Anyone who would dispute their truth would, it seems to me, be impervious to argument, and reasoning would be wasted upon him. It would be like trying to prove by argument that terrestrial objects, if unsupported, fall to the ground. Anyone who would require persuasion to induce him to believe this must be left on one side and disregarded. He is not amenable to reason.

It is to me equally manifest that it is wrong to concentrate our efforts of education upon a faculty that is purely, or even mainly, recreative, and is of no survival value, and of no assistance in the struggle for life, or in the business of after life ; but this is highly controversial matter, and the view just expressed runs directly counter to the whole principles and practice of education as at present conducted, and therefore its consideration must be postponed.

The three faculties that have been examined above, the musical, the chess-playing and the mathematical, all belong to the same group ; and, as has been shown, it is more than a group : it is a family. There is a strong underlying kinship between them, shown not only by their similarities, but by the generality with which they are associated, either in the same person or in relatives. We are now to notice that the family group is not restricted to these three faculties, though these three present the

common qualities of the group in their most pronounced and conspicuous degree. There are other isolated faculties, and one of these must now be examined.

Every normal child is born with the faculty or potentiality of acquiring a mother tongue at the time of life and in the way in which the mother tongue is acquired ; that is to say, in infancy, and by hearing it spoken by those around him, and imitating them. At this time of life and in this way, a language, or two, or even three languages may be acquired with the utmost ease and accuracy by every normal child ; but after this age is past, the ability to acquire a language differs very widely in different people. Some retain the faculty to a very advanced age, so that Dr. Johnson began to learn Italian at the age of 73, and Cicero Greek at the age of 80 ; but these instances are very exceptional. In most people the acquisition of a new language is made with increasing difficulty as age advances, and becomes practically impossible when middle life is reached. By practically impossible I mean impossible without the expenditure of time, effort, and labour out of all proportion to the value of the result attained. In many cases the ability is lost very early in life, so that a schoolmaster who is enthusiastic even beyond all other schoolmasters for the teaching of Latin and Greek to boys of 10 or 12 years old confessed to me that he sometimes comes across children who are what he calls 'language deaf,' and cannot in any time and by any effort learn a foreign tongue. A correspondent of *The Times* confessed in that paper that he spent seven fruitless years struggling in vain to acquire the rudiments of Latin, and finally left school without being able to construe a simple sentence, yet he afterwards became a distinguished authority in science, the president of scientific societies. Hence it appears that the ability to learn a foreign language after infancy is past belongs to the group of isolated faculties in the respect that it may be completely absent in men who are otherwise^{wise} of exceptional ability. It may also be highly developed in the dull, and even in the mentally defective. I have had under my care three

youths who were mentally very defective, and were placed under my care on that account, each of whom had acquired, after infancy was past, three languages besides his mother tongue. The faculty may be present in the highest degree without carrying with it any exceptional ability in other respects. Cardinal Mezzofanti is said to have been able to converse in no fewer than fifty languages, but he was not a man of conspicuous ability in any other direction. In the fourth respect also the language faculty resembles music and the other isolated faculties: its cultivation does not assist or involve the development of any other faculty, except, perhaps, that of the verbal memory, which is of very little importance. It is true that the advocates of the classical education advance, as one of the reasons for its maintenance, that it is such a wonderful training for the mind, but *whoso makes an assertion, on him lies the burden of proof*; and I know of no evidence even, let alone proof, that the learning of a new language assists the development of any mental faculty but the language faculty itself and the verbal memory, which is of very small importance. Up to the present time no evidence has been offered of this assertion. It remains a bare assertion, and until some evidence in favour of it is adduced, it would be waste of time to consider it. Fifthly, the faculty, as cultivated in schools, that is to say, as limited to Latin and Greek, is a purely recreative faculty, having no survival value, no value as assistance in the business of life. This is virtually admitted by the classicists themselves. When the defence of these studies is not based on the alleged mental training they impart, it is based on the advantage of gaining access by their means to the classical literature. What is this literature? It is History, Philosophy, Oratory, Poetry, Satire, Drama; and to the bulk of mankind all these are recreations. Like music and chess playing, pure literature is recreation—an elevated and refined form of recreation, but still, recreation pure and simple. Training in refined and elevated modes of recreation should, I think, occupy some odd corners of the time devoted to education, but to

erect recreation into the main object of education seems to me a mistake. Education should be preparation for life, and life is not wholly, nor even mainly, recreation. An education that sets up recreation as the main object, or one of the main objects of life, is in my opinion erroneous and pernicious, however refined and elevated the form of the recreation may be. It is a false ideal. Sixthly and lastly, it is to be noted that this faculty of learning languages after infancy is past, and by an artificial and preposterous, or cart-before-the-horse method, of grammar first and speaking the language last or not at all, is apt to run in families, and in the same families whose members exhibit ability in music, chess, and mathematics. It does not exhibit the characters of the group in the extreme degree in which they are displayed by music and chess ability; but it exhibits them in degree so strongly pronounced that it is exceptionally unsuitable to be chosen as the common ground of education.

It has been alleged by the 'scientists' that the 'classicists' have chosen for the ground of education the most unsuitable subject that could possibly be found. It will be seen from what I have said that this is an exaggeration. The most unsuitable subject possible is that faculty of this group which presents the characters of the group in the highest degree, and this faculty is no doubt either music or chess playing, which may be bracketed first. Mathematics comes next, and the artificial language faculty third. It will be seen, therefore, that schoolmistresses have been more discerning than schoolmasters. While schoolmasters have chosen the second and third worst subjects on which to base their system of education, schoolmistresses have chosen the worst and the second worst. Schoolmistresses have abandoned music, however, as the ground of education, but schoolmasters show no sign of abandoning the artificial teaching of the dead languages, and we should be cautious in urging them to do so, for, *pace* the scientists, they might, and probably would, do worse. They might choose chess playing, and make gambits take the place

of grammar, substitute end-games for the irregular verbs, and the composition of chess problems for the composition of hexameters.

You cannot make a silk purse out of a sow's ear, neither can you cultivate a faculty in a child who does not possess the rudiment of that faculty. This seems so obvious that it is needless to insist upon it, but it is as true of Education as it is of Logic and of Alienism, that the most obvious truths are the most strenuously denied, and the very last to be acknowledged. There are other impossibilities that are less obvious, but yet that are acknowledged. Everyone will admit that we cannot make a stupid child clever, or cultivate an ordinary child into a genius. Everyone does admit that the poet is born and not made, and probably everyone will admit, when it is pointed out to him, that this is true, not only of the poet, but also of the artist of every kind. I doubt, however, whether it is recognized how many kinds of mind are run into a certain mould by nature, and cannot, by any effort of nurture, be transformed into a different kind. The artist is born and not made ; and the artist is he who highly appreciates beauty, and pursues it with ardour ; but is it generally recognized that the passion for utility is equally innate, and that the inventor as well as the artist owes his proclivity to nature ? As there is this innate proclivity towards the pursuit of beauty or the pursuit of utility, so there is a proclivity, also innate, towards action, or towards thinking ; towards creation or imitation ; towards conformity or rebellion ; towards inductive reasoning or deductive reasoning ; towards interest in people or interest in things ; towards leading or following ; and many others. These special proclivities do not usually show themselves conspicuously in early life, though sometimes they do so, as the cases of Mozart, Sir Thomas Lawrence, Bidder, Chatterton, and many others testify ; but even in childhood they may often be discovered if they are sought with a discerning eye, and as children grow older, their individual peculiarities become year by year more evident. It follows that the farther

education proceeds, the more diversified it should become, so that everyone may have opportunity to find what he can do best.

Unfortunately, the limits of nature and nurture are imperfectly known, and the limits of both have been misapprehended : On the one hand, the power of nature has been grossly exaggerated by the criminologist, who supposes that criminals are, like poets, born and not made; and on the other hand the power of nature has been grossly underestimated by schoolmistresses, who assume that every girl could be taught music, and is still grossly underestimated by schoolmasters, who assume that every boy can be taught languages by the preposterous method, and mathematics. It is characteristic of the University curricula in pedagogy that not one of them gives any place to the study of native capacities or potentialities, which is the very first thing to be determined before the foundation of education can be well and truly laid ; for, of course, a University curriculum is the very last place in which we should look for any appreciation of the real problems of life.

CHAPTER II

THE AIMS OF EDUCATION

THE general aim of education is, I aver, to prepare and fit the child for the life he is to lead when he shall be no longer a child. Having sketched very roughly the constitution of the child, the material on which the schoolmaster is to work, our next task is to ascertain what this life is, to which the child is to be fitted. Briefly, life is striving by action in circumstances to attain ends ; and this gives us at once the aims of education. It should indicate the main ends to be striven for in life ; it should train and cultivate faculty so as to give power of effectual action ; and it should impart knowledge of the circumstances in which action is to take place, and which are to be modified by man's action to attain his ends ; or, briefly, the proper aims of education are to inculcate ideals, to train faculty, and to impart knowledge. They are here placed in the order of their importance, and in this order they may be considered.

THE FORMATION OF CHARACTER

Unquestionably the most important function of education is the formation of character by the inculcation of ideals, that is to say, of the great ends towards the attainment of which the striving of life is to be directed ; and this, the most important subject of education, is by good fortune the one most completely under control. The first purpose of education is to instil into the child the main purposes of life, so that when the child, now no longer a child, starts from the safe harbour of the family and the school, and sets forth on its voyage on the ocean of life, it

shall not have to sail on an uncharted sea to an unknown destination, but shall be equipped with a knowledge of the port to be aimed for, the course to steer, and the aid of a pole-star to guide it on its way. The primary duty of the educator is to provide the child with an equipment of ideals.

Is this practicable? Practicable? The whole history of the human race, of all nations, peoples, and languages, shows that it is not only practicable but easy. There is not a tribe of the lowest savages that has not achieved it completely. Researches into savage life show that, without exception, savages are the slaves of custom. Their whole lives, down to minute detail, are regulated by iron customs which they never seek to evade. Their lives are lived in fear, in restraint, in submission, in suffering, subject to galling, unreasoning, unnecessary, arbitrary prohibitions and taboos, and to customary duties equally galling, unreasoning, unnecessary, and arbitrary. They endure painful mutilations: they submit to painful sacrifices. To all these things they submit under no compulsion, controlled by no police, forced by no coercion, without thought of rebellion, without a murmur, spontaneously, willingly, even ardently. How are these wild, unstable, wayward, impulsive, passionate natures brought to submit to such a rigorous and cruel discipline? By education. By the inculcation from infancy of these ideals. In these ideals they have been brought up, and to them they cling with the utmost tenacity.

We see in submission to the regulations of caste the same dominance of ideals over the whole conduct of life. Caste is an elaborate system of restraints, prohibitions, and duties. Caste fixes the social status of the family and the individual, prescribes the occupation to be followed, the food that must and must not be eaten, the ceremonies that must be observed, even the things that may and may not be touched; and the regulations of caste are observed with punctual accuracy, without coercion, without even supervision, with whole-hearted voluntary concurrence.

Why ? Because caste is a rule of life inculcated from the earliest years of life. It is conformity with an ideal to which the people who observe it have been educated.

What is it that constitutes a nation ? Race ? There may be tribes, but there is not a nation of pure race on the face of the earth. Similar mixture of blood, then ? All the nations of Europe are of mixed blood, and none is mixed in uniform proportion. They are all mixed of the same three main races, and in each nation one of these races is preponderant in one district, another in a second, and another in a third. Moreover, the 'kultured and practical' German is preponderantly of the same race as the 'barbarous and dreamy' Russian. The German nation is composed mainly, and in uneven proportions, of two widely different races that have mingled their blood but little ; yet the Germans form a very homogeneous nation. There are two Irish nations, of which the larger is of much the same racial mixture as the English, and yet in nationality it is distinct, and even antagonistic. Language ? The Chinese speak many languages, yet they constitute a nation. Even within the British nation there are many dialects, and at least three mother tongues. Government ? Canada is a nation, and has more than one government. Germany is a nation and has many governments. Religion ? In England alone there are said to be seventy religions. Climate ? Physical conformation of the country ? Mode of life ? The most cursory examination shows that the several parts of no nation have any of these in common. What is it, then, that constitutes a nation, and binds together, in one homogeneous whole, people of different races, languages, religions, and modes of life, living in diverse circumstances ? It is the possession of common ideals. The Germans are a nation in that they are all indoctrinated with the same ideal ; in that they are brought up from infancy to worship the State ; in that they all recognize and revere the same paramount aim in life—*Deutschland uber alles*. The larger of the two Irish nations, different as its members are in race, language,

religion, physical surroundings and mode of life, is an homogeneous nation in that all its members are animated intensely by a common ideal, the ideal of an independent nationality. There is nothing in the Irish nature that craves especially for independent nationality. Irishmen settled in the United States and other countries never dream of an independent nationality for themselves, nor do their children trouble about an independent nationality for Ireland, for these children are brought up to other ideals. The Irishman born in any part of Ireland but the north-east corner clings to his nationality with his life, and has in some cases sacrificed his life to the ideal of nationality. Why? Because this ideal has been instilled into him from his earliest years. What is the explanation of the schoolmaster's devotion, in the teeth of reason and utility, to classical education? Is it not devotion to an ideal, inculcated so strongly in early life that he is unable to emancipate himself? Is it not precisely on a par with the worship of the State by the German, with the adherence to caste by the Hindu, and with the slavery to custom of the savage?

Hence it appears that nothing is more easy than to instil ideals into children, and nothing has more effect upon their lives, nothing is more important than that the ideals should be the right ideals. What are the right ideals? As to some of them, there can be no doubt, and will be no difference. Since man lives a social life, since he is always in relation with his fellows, he must imbibe those common ideals which make social life possible. The basic principles of morality, as laid down in the decalogue, are the foundation of character, and lie at the very root of education; but they are foundations only, and need considerable additions before character can be regarded as formed. Such additions are reverence and tenderness towards the weak and the old; respect for women; self-respect, under which head should be inculcated the care of the person, cleanliness, neatness, habits of order, the faithful observance of promises and the sacredness of the plighted word; loyalty

in all its aspects : loyalty to the family, the school, towards comrades, playfellows, employers and employed, towards those with the right to command and those with the duty to obey, towards leaders and followers, towards country and king ; the obligation to play the game. These are the first necessities in education : these are the things that matter most ; but what assistance in inculcating them shall we derive from the teaching of Latin and Greek, or from the teaching of physical science ?

What is the stupendous force that has driven or drawn into the field millions of men in this war to meet death, or mutilation, or horrors that have made death welcome ? In a vast number of cases, no doubt there was coercion from without ; but in a vast number coercion was not needed ; and in a vast number, certainly in the great majority, of our own men, there was nothing but the attraction of an ideal. And why the despicable exhibition by the few ? Why the strikes, the Union of Democratic Control, the Anti-Conscription League ? Is it not evidently from the following of low ideals ? Is it not because the inculcation of high ideals in our schools is deficient, and is replaced by the inculcation of low ideals from the platform ? What measures are taken to inculcate patriotism in our schools ? Of all ideals, the most powerful, the most stirring, the most efficient, are those afforded by religion, and owing to the miserable squabbles of sectaries the teaching of religious ideals has been banished from most of our schools. In substitution for them, in the place of elevating, inspiring, unifying, unselfish ideals, inculcated with all the solemn sanctions of religion, we have witnessed prominent politicians inculcating with Celtic fervour the ideals of inter-class hatred, of sordid gain by means of questionable honesty. We have witnessed the politicians of both parties bidding against one another in a sordid auction of bribes to the electorate, and when a great crisis came unexpectedly upon us, we reaped, in the hour of trial and danger, the consequences of the degradation of our ideals. To many of us it was a startling and most gratify-

ing surprise to find that, after all, the degradation was only skin deep. We saw without surprise that there were some who to save their skins would sacrifice their manliness and all that makes life worth living ; but we saw with wonder and satisfaction that these were but a miserable and despised remnant, and that the heart of the nation was still sound and true.

CHAPTER III

THE CULTIVATION OF FACULTY

LIFE is striving by action in circumstances to attain ends—to achieve purposes. When a purpose has been determined on, the next thing is to act in such a way as to attain that purpose. Life is action ; and to prepare children for life, we must teach them how to act. It is assumed by authorities on education, it is the underlying principle that governs our whole system of education, that the aim and purpose of education is to impart knowledge to the scholar, and I should be much surprised if more than one school-master in a thousand has any inkling that education has any other purpose. If the principles here expounded are correct, this is very erroneous. After purposes have been selected, the next thing is to act in such a way as to attain them ; and although knowledge is very necessary to action, it is subordinate to action ; and more than this, true knowledge, knowledge worth having, the knowledge that assists and guides action, can be attained only by action. The imparting of knowledge occupies but a subordinate place in any efficient scheme of education. Education should be preparation for life ; and life consists, not in knowing, but in doing. What is important is not that children should be taught to know things, but that they should be taught to do things. It is here that the classicists and the scientists are alike immersed in a common error. The classicist is desirous that children should be taught a knowledge of Latin and Greek. The scientist desires that they should be taught a knowledge of the facts of natural science. In my view both are wrong, though the error of the scientist is less enormous than

the error of the classicist. It is desirable that all children should have a knowledge of the facts of natural science. It is desirable that a few scattered individuals should have a knowledge of Latin and Greek. But it is not desirable that knowledge even of the facts of natural science should be placed in the forefront of education. After purposes have been settled, the next thing is to teach the child so to act as to achieve his purposes; and it is action, action, action, that should be the main theme of education. Children are to be taught to know, but they must first be taught to do, and it is in doing that knowledge is most naturally, most easily, and most tenaciously acquired. Hear that great teacher, Sir Clifford Allbutt, Regius Professor of Physic in the University of Cambridge. In a letter that appeared in *The Times* within the last month or two he says: 'that in action there is a certain pregnancy; that by action are developed inward rudiments which, left unprovoked, would die unborn; that the limbs in their adventures have a wider compass, awaken wider responses, lay up in the nervous system, and bring into gear, much beyond the design of their immediate purpose. The child tosses his limbs in no mere effervescence, he is unwittingly building mansions in his brain; and so onward for all developing life. Hence, before adolescence, instinct draws the boy to the concrete, and especially to this missionary work of the bodily members. He is not blind only to the charms of "mute labial stems"; any chain of passive reflection, literary or scientific, he repudiates as "rot." Abstractions leave him cold. And he has creative nature on his side. Doctrines can prove themselves only in action. Meanwhile he is carrying the abstract along with him, to recognize it in its aphorismal forms later. We say to him, "Think what you are doing." Abstractions before experience are sawdust. . . . Doing, drama, is the boy's life. In the simple dramas of the nursery the infant screams with delight, and the boy's heart glows over his first box of tools. It is true that he loves to hear of

journeys of discovery, but no sooner is the story told than his right impulse is to put it into action. Once, to a little boy, I described a travelling overhead crane. Some days later, when I had half-forgotten our talk, he informed me that he had made all arrangements to construct one around his father's garden, and to my dismay earnestly begged there should be no delay in beginning. The boy was right. Thoughts, if they are to thrive, must be embodied in some deed ; so we bought a box of " Meccano," and built the crane in the schoolroom . . .

' We shall not then smile at the head-master who advertises for an under-master with " moderate qualifications " as a scholar but in games a " blue " ; he is more nearly right than quite appears. Dimly, like the stubborn parent, he perceives that for boys, say under *æt.* 16, action is paramount ; but too often he fails to see, even dimly, that this same principle should rule on the benches. Art, fine action, craft, is the beginning ; abstract principles define themselves later. Like the artisan, the boy learns first to make amid the thronging contingencies of practice. By use of his senses, which are fresh and acute, and his limbs, which are plastic, he must build the brain, before he turns inward upon it and bothers it with reflections. . . .

' Let me offer yet another example of my meaning. In a recent conversation with an intelligent boy a matter of mensuration came up. He had " learnt it " at his (great public) school, but was " not much good at mathematics." Well, what had he plotted out at school ? What building, garden, yard, or field ? None ! What about poles, chains, and theodolite ? He had never even seen such instruments ! Instead of doing, in which the boys would have been as busy as bees, they sat listening to abstract rules and calculations, or at best looking at diagrams drawn by somebody else. . . .

' But this is not the way in which brains are built ; school-days over, such hearsay and disembodied learning is fugacious, and the ordinary boy's time has been almost wasted. This is why, as I have complained, the average

undergraduate comes to me, after ten years of an expensive school, with his mind empty. Bits of paper planted in the brain do not pullulate. How by doing, by drama, teaching shall create organic and abiding results we have in the Boy Scouts a shining example. With the eye of genius General Baden-Powell, in the field of conduct and character, did what in most other fields of education we have yet to begin. The leading qualities wanted of young men in the greater world are spontaneity, initiative, ready wits in tight places, all of which depend on structures in the brain, organized not by reading but by former activities.'

All this is admirably said, and all is direct to the purpose. It is by doing things, by action alone, that the brain is developed ; and every mode of action that is learned not only carries forward the development of the muscles, nerves, and brain immediately concerned, but reverberates throughout the whole nature of the learner, and makes different modes of action easier and readier and more precise thereafter. Even the learning of words by rote, the chief accomplishment taught in the great public schools, makes easier the subsequent learning of other words by rote ; and this is the one faculty that is developed by the existing scheme of classical education. Is it any wonder that Professor Sir Clifford Allbutt finds that ' the boys who come up to Cambridge from the great schools are, for the most part, excellent fellows, men who will make, and do make, admirable citizens. But of learning, as a rule, their minds are a blank . . . Our main grievance is not that this side of the mind is instructed to the defect of that, but that the average young man comes up to the university with his mind empty of all scholastic knowledge, literary or scientific. His lack of command of his own language is generally admitted. What does he know in place of it ? Nothing ! In medicine a student cannot go far without running against a Greek or a Latin word ; he has been learning both these languages for some ten years. What does he make of these words ? He

stumbles over them, mispronounces them, and can offer no interpretation of them. If then perchance we turn to some French or German paper we find ourselves, if possible, worse equipped than before. In dismay we ask, What did you learn at school? Nothing! It is not then a change of subjects which we demand; the fault is that the teaching methods are astray. The public schoolmaster, with very few exceptions, begins with the abstract, with terms which the boy can learn only as a parrot, instead of with the concrete, which he assimilates from the cradle, and uses to build up his brain.'

These are the words of a man who is in a position to know, who receives the finished product of ten years of the best, or at any rate of the most expensive, schoolmastering that the country can provide, of schoolmastering which does not profess or pretend to do anything but cram knowledge into boys' heads; and after ten years of such cramming we find the heads are empty—as empty as a drum. The boys know nothing!

Yet if we venture to hint that the public school and university training is short of perfection, we are at once overwhelmed with a torrent of vituperation, ranging from the shrill scream of indignation, through the roar of anger, to the deep growl of contempt. In fact, we meet with the same reception that we should encounter if we tried to demonstrate to a Brahmin the absurdity of caste, or to a Highlander the inefficacy of touching wood as a means of averting disaster, or to the average woman the harmlessness of viewing the new moon through glass. The fact is, of course, that the belief in the efficacy of the present system of education, contrary as it is to both reason and experience, is held by the same tenure as other faiths that are contradicted by reason and experience. It is a religion or a superstition, whichever we prefer to call it, and shares with other superstitions their impregnability to the assaults of both experience and reason. It is instructive to recount how the superstition arose. At the time of the Renaissance the minds of men were stirred in a mighty upheaval.

The craving for knowledge was eager and insistent. For the first time for many centuries men began to recognize how ignorant they were, and to desire to know. But there was no body of knowledge to which they could go and satisfy their craving. The only subjects that had hitherto been studied by learned men and able men and seekers after knowledge were Theology and Logic, Grammar and Rhetoric ; and these had been so exhaustively studied that nothing further could be discovered in them by the means and methods then at the disposal of the student. After centuries of barren disputation about them he turned away from them with disgust, and craved for some other subject on which to exercise the powers he felt he possessed. Just at this time it happened that the literature of ancient Greece became known in Western Europe, and at once the vague discontent, the craving for some new subject of study, was satisfied. In comparison with the arid and barren studies to which men of the Western world had hitherto been restricted, the literature, the philosophy, the science of ancient Greece appeared veritable works of the gods. They were extolled and exalted ; they were studied with the utmost avidity ; they were regarded as superhuman ; and the students in the crowded universities of Oxford and Cambridge, as well as of the Continent, scrambled for a knowledge of Greek which should enable them to read such marvellous productions. Imagine England at this present time to be divested by some immense catastrophe of the whole of her literature. Imagine her cut off from the literature of the rest of the world. Imagine all science to be forgotten, all arts but the most primitive to be non-existent, and yet the people to retain their eagerness to know and to do. Imagine this state of affairs, and then imagine that by a strange chance the literature of ancient China or of Sanskrit were suddenly to become known amongst us. Judged even by our present standard these literatures are meritorious, and in some parts admirable ; but what would they not be to such a nation as I have sketched ! They would be seized upon with the same

avidity, they would be studied with the same assiduity, their merits would be exalted with the same hyperbolical laudation as the Greek literature was at the time of the Renaissance. A knowledge of Chinese or of Sanskrit would be acquired by every man who made any pretence to be educated ; and since, where education is expensive and is held in high estimation, it becomes the mark of the leisured and wealthy, a knowledge of Chinese or Sanskrit would soon become the appanage of the leisured and wealthy. Now suppose that the knowledge of science and the practice of art as they exist to-day were gradually restored to the nation, and suppose that in the course of a few generations such a magnificent vernacular literature as we now possess were to be produced, this science, this art, and this literature would be cultivated ; they would be studied ; but in the meantime the Chinese would have secured the monopoly in the schools of the wealthy and the leisured. A caste of teachers of Chinese would have become established, and would guard their monopoly with sedulous vigilance. As the volume and excellence of modern science and of vernacular literature increased, the number of those who pursue them would increase, and the Chinese literature and science would become continually less and less important, more and more neglectable by comparison. What would be the obvious course for the caste of teachers of Chinese to do in the circumstances ? The teaching of Chinese is the only thing they can do ; it is their monopoly, and it is a lucrative monopoly. They dominate the schools and the universities, and it is to their interest that Chinese should continue to be taught as a matter of necessity in the schools and the universities. If therefore they have any rudiment of the instinct of self-preservation, they will secure that there shall be no entrance into a university of any student who has not already been taught Chinese at school. They will extol the wonders of the Chinese literature and science and philosophy, and lest anyone but themselves should read Chinese for himself and discover how inferior it is to

modern literature and science and philosophy, they will teach it in such a way as to make it so disgusting to the scholar that, once he has left the school or university, he will never open a book on Chinese again ; and lest this should be inefficacious, they will teach it in such a way that after ten years of such teaching the scholar shall not be able to understand it at all ; that his mind with respect to that and everything else shall be empty ; that when he leaves school he shall know nothing. This, I say, is the natural course that self-preservation and the preservation of their monopoly would dictate to the teachers of Chinese under the circumstances I have supposed. Let us be thankful that the circumstances are only imaginary.

The second and secondary aim of education should be the training of faculty, and faculty is trained, not by teaching a verbal parrot knowledge of ' mute labial stems ' of declensions and conjugations, not even by telling the scholar how things are done ; but by showing him how to do them and letting him do them himself. The child is to be taught to act, and to act efficiently ; to keep the purpose of his action in view, and so to act as to attain his purpose with the greatest completeness and the least expenditure of time, labour, and effort. This is the true function of the school and of the schoolmaster.

Action is to be considered in its two aspects : action of mind and action of body, or thinking and doing. The two aspects are to be separately considered here, but they are not to be taught separately. They can scarcely be so taught, and if it were possible it would not be desirable so to teach them, for thinking is the basis of action, and action is the test of true thinking. In order to do a thing, we must first settle in the mind how it is to be done ; and in order to discover whether we have thought truly, we must bring our thought to the test of experience. We must act in conformity with it, and see whether our action brings us up against experience that contradicts it, or confirms it. John Hunter's maxim was ' Don't think : try,' and the maxim is a good safeguard against baseless and random

speculation ; but a better maxim is ' When you have thought, try.' In this way action and thinking support one another and advance together, like the right leg and the left leg. The man who tries to act without thinking or to think without acting is like a man who refuses to use both legs, and prefers to progress by hopping. If we want to know whether this fly will attract the fish in this river on this afternoon, it is no use to sit down and think about it. Here John Hunter's maxim is applicable. Don't think : try. Thus, doing is a necessary preliminary to knowing. But if, having had no experience of fishing, or of fishing in this river, we wish to catch fish, we must first devise some mode of action to achieve our purpose. In this case thinking is a necessary preliminary to doing. Thinking and doing must go hand in hand. There is scarcely any way of doing a thing that may not be improved by thinking over it : there is scarcely any belief that may not be brought into close accordance with fact by acting upon it and observing the result.

But though thinking and doing ought never to be divorced in practice, yet they may very well be separated for consideration ; and we will consider thinking first.

Children are to be taught to think. The proposition is startling in its novelty and extravagance. The only attempt that is made to teach thinking in the universities is to compel the student to study the childish prattle that goes under the name of Logic, a subject so stuffed with absurdities that no one whose intellect had not been withered and shrivelled by ten years of the fruitless study of Latin and Greek would tolerate it for an hour. The notion of teaching what is facetiously termed Logic to anyone is abhorrent to everyone who is able to think at all, and the notion of teaching Logic to children must be abhorrent even to professors of Logic themselves. Children, and adults also, would gain more insight and instruction in modes of thinking, and a great deal more entertainment, by studying Lear's *Book of Nonsense* ; though even then, the subject of their studies would not be more nonsensical than

Logic. If Logic were indeed a correct mode of teaching the art of thinking, it certainly ought to be taught in schools, but even the classicists have reserved it for subsequent study in university life. Whether it is set for study in the universities out of dread that some remnant of intelligence may remain in the sixth form boy after ten years of schooling, and with the purpose of destroying any remnant of intelligence that may remain, I do not know ; but whether this is the intention or not, the study is admirably adapted to serve this purpose.

Children are to be taught to think. I suppose the schoolmaster's methods of teaching this accomplishment would be to say to the child, ' Now, child, think. See, here is a book: read it and think about it.' That would be one method, but that would not be my method. The child is to be taught all the modes of thinking. It is to be taught to observe, to generalize, to discriminate, to abstract, to classify, and to reason. Long words these, and terrifying to those who do not know their meaning, but the things they stand for are so simple and elementary that the child has already been engaged in doing them from the dawn of its intelligence, and long before he came under the hand of the schoolmaster. What is more important still, children are to be taught to trace the sequence of cause and effect, to reject alleged causes that could not be causes, that flagrantly violate the canons of causation, and to test an alleged cause that plausibly seems to be a cause and yet may not be. But all this is far above the comprehension of little children? Of course it is if it is taught in words, after the method of the schoolmaster, but not if it is taught in action. Does this cold draught come from the open door, or from the open window? The schoolmaster will explain, if, which is unlikely, he happens to know it that warmth expands the air, which, being expanded is lighter than cold air, being lighter rises, and so leaves an area of less pressure into which the cold air from without rushes under pressure. This, I suppose, is the explanation that schoolmasters have in their minds—if they have anything

in their minds—when they object to the teaching of science. If so, the objection is reasonable. The proper way in this case is to follow John Hunter's maxim. Don't think : try. Shut the door, and if the draught continues, it did not come from the door. Then try the window.

More important still, children are to be taught, still never by precept, but always by practice, to distinguish relative importance for the purpose in hand ; to seize upon what is crucial for that purpose ; to select the relevant and discard the irrelevant ; to discern, identify, and clarify the main point at issue : to keep the purpose of their endeavour steadily in view ; to discover the main point and stick to it. I do not mean that they should be told in words to do this. Such telling is not teaching. I mean that their efforts should be watched, and if they go wrong in this respect, if they follow out some side issue to the neglect of the main purpose, they should be allowed to do so, and to go on until their failure becomes manifest to themselves, and then their path should be traced backwards to the point at which it broke away from the direct forthright, and they should be made to begin again till they successfully reach their end and achieve their purpose.

As an aid to clear thinking, nothing is more important than training in the faculty of speech, so that children may attain a mastery over their mother tongue. We do not think entirely in words. Very far from it. All our thinking about concrete material things is done in images of those things, and not in words ; but all our thinking about generalities and abstracts, all thinking in the higher regions of thought, is done by means of words and propositions, and hence the paramount importance, to clear thinking about these matters, of a ready, easy, accurate mastery of the mother tongue. It is the more necessary to insist upon this, since it is entirely neglected in our present system of education. Our great public schools do not profess to teach on their classical side anything but words ; and they do teach words—Latin and Greek words—but they do not teach the use of words ; still less do they

teach the use of the mother tongue. The unit of speech is not the word, but the proposition, which expresses the thought ; and as children are not taught to think, neither are they taught to express such thoughts as they have. When the boy comes up to the university after ten years of schooling in our great public schools, 'His lack of command of his own language,' says Sir Clifford Allbutt, 'is generally admitted.' It is indeed, nor is the deficiency made good in his university career. A few years ago a large number of graduates of the University of London, assembled in Convocation, formulated, passed, and promulgated to the world through the medium of the newspapers, a resolution which they intended to be condemnatory of the Government, but which did in fact strongly condemn themselves. The meeting was a large one, and as the resolution proposed and passed was upon the action of the Government with respect to education, the graduates assembled were almost all graduates in Arts, and almost all schoolmasters or schoolmistresses ; yet not one of them had sufficient knowledge of his own mother tongue to detect the enormous, manifest, glaring blunder that was made. If this is what the teachers are, what are the scholars likely to be ? The Government and the various departments of the Government are constantly issuing proclamations, regulations, instructions, warnings, prohibitions, forms to be filled up, notices, and publications of all kinds ; and the expression of all these documents is a byword of reproach and derision. Their blunders in English are taken as a matter of course ; their meaning is scarcely ever clear ; and not seldom they are unintelligible. The judges are constantly complaining that the Acts of Parliament they have to interpret are so badly worded that it is impossible to tell their meaning, and even the speech put into the mouth of the King at the opening and closing of Parliament is notorious for its faulty English. Supposing the classical education did give a mastery, which it never does give, over the Latin and Greek tongues, of what value is this accomplishment when it is accom-

panied by gross incompetence in the use of English? There is a silly parrot cry, constantly repeated by the advocates of classical education, that a knowledge of Latin and Greek is necessary to the proper understanding and use of the English tongue; and this they continue to repeat in face of the notorious fact that some of the greatest masters of English, such as John Bunyan, Daniel Defoe, William Cobbett, and John Bright, were totally ignorant of both Greek and Latin, and in face of the fact that all the higher permanent officials of the Government, and most members of both Houses of Parliament, have been through the classical mill, and yet compose and issue to the world such caricatures of English as are to be found in all official documents.

It is the more necessary to insist upon the importance of teaching children to express themselves clearly and accurately in their mother tongue, for that clear and accurate speaking and writing mean clear and accurate thought; and obversely, confused, mushy, slipshod, muddled expression faithfully reflects the confused, mushy, slipshod, muddled character of the thought that it expresses. So utterly has the teaching of English been neglected in our schools that not only are the great majority of the population incapable of expressing themselves in pure, clear English, but also the art of expression is no longer valued; and worse even than this, some writers have obtained notoriety, and even a questionable fame and admiration, by deliberately choosing to express themselves badly. Such writers as Browning and Meredith have attained fame by exploiting the ignorance and bad taste of the public to which they appealed; and there is a considerable school of philosophers, long dominant in this country, who owe their reputation entirely to their unintelligibility. Anyone who is able to dissect their writings, and will take the pains to do so, finds that they are utter nonsense; and yet these men have passed, and still pass, as leading philosophers. In a competition for the expression of mushy thought expressed in vile English,

consisting mainly of stock phrases, worn-out tags, and intensitive adjectives and adverbs, it is difficult to say whether the classical side would beat the scientific side, or *vice versa* ; but in view of the much greater influence of the former, and the much greater share that it has in what passes for education, the classical side must bear by far the greater burden of the responsibility. In a Bill recently introduced into Parliament by the Minister of Education himself, there is a blunder in English perpetrated twice in the first clause of three lines!

I have put the use of the mother tongue first of all the faculties to be trained, and I have put it first for several reasons. For one thing, it is the characteristically human faculty, the faculty that most clearly distinguishes man from the lower animals. For another thing, it is by the proper training in the use of languages that we learn to think readily, clearly, and precisely of generalities and abstracts. For a third thing, man is primarily a social animal: his life is to be lived among his fellows, and therefore the means by which he communicates with his fellows is of the highest social importance. But though language is necessary for the higher and more elaborate exercises of thinking, it is not by the use of language that we learn to think. We think, or ought to think, mainly not about words but about things. This of course is a vile heresy in the eyes of the classicists, to whom the word is with God, and the word is God ; but it is true nevertheless, and we learn to think of things by our experience of things, by traffic with them, by the impressions they make upon us and by our own action upon them.

I have said above that children should be taught to think ; that they should be taught to observe, to generalize, to discriminate to abstract, to classify, and to reason ; and that they should be taught these things by action. The saying seems a hard one, so let me give a simple instance of what I mean, an instance that is not merely imaginary, but has been successfully put to the test of experience. Put before the child a handful of pebbles and a pinch of sand,

and tell it to write down in one column the resemblances between the pebbles and the grains of sand, and in another column the differences. You have given to the child something to do, something to exercise his faculties upon, and he takes up his task with avidity. He soon finds that the grains of sand are so small that he cannot see their peculiarities very well, so you make him the proud possessor of a magnifying glass ; and he is more than ever eager to use the new appliance and to show himself worthy of its possession. As he proceeds with his task, he finds the column of resemblances growing and growing. The grains of sand resemble the pebbles in shape ; in hardness ; allowing for differences in size, in weight ; in separateness from one another ; in toughness, for he cannot break them without great difficulty ; in surface, for both are smooth. Give the child two basins of water, and let him put the pebbles into one and the sand into the other. He soon writes down that both sink in the water, and both muddy the water. Give him a hint, and opportunities, and he soon finds that both can be washed clean and muddy the water no more. Give him a hammer, and he finds that both can be broken. Meanwhile on the other side of the account he has found but two differences. They differ in size, and the grains of sand let some light through, while the pebbles do not. But when he has discerned this difference, we bid him examine again the thin edges of the pebbles he has broken, and he finds that they also let light through. No difference remains, therefore, but the difference in size ; and now we ask him what this means. If they are alike in so many respects and differ only in size, what conclusion does he come to about them ? This is a poser. It sets him thinking. If he is a clever boy, he soon tumbles to it : if he is a dull boy, it takes him longer ; but sooner or later you see the flash of intelligence come into his face, and he says, ' Why, of course : I know. They are the same thing.' The boy has opened an epoch in his life. He has made his first scientific discovery. And he has done more than this : much more. He has learned to observe, and to

observe systematically. He has learned to compare, to discriminate differences, to discern similarities, to seize upon what is important for the purpose in view, to recognize underlying similarity beneath superficial difference, in other words to generalize ; and he has done much more than this. He has learned, though he does not know it yet, and will not recognize it for years to come, perhaps will never recognize it, but he has learned in effect that thinking is nothing but comparison. It is the discrimination of difference and the discernment of similarity. All this he has learned by comparing a few pebbles with a pinch of sand ; but then he has been doing. He has been exercising faculty, and it is by the exercise of faculty that faculty increases and develops, and it is in the exercise of faculty that our greatest and highest pleasures are found. The lesson has been a delight to the boy, and it is not over yet. We mix the sand and the pebbles together, and tell him to separate them. He is sure to begin by picking out the pebbles one by one ; but this is a slow process, and moreover, being still damp from their immersion in the water, they stick together, and cannot be separated without shaking and wiping ; and even then the grains of sand stick to the fingers. Cannot he devise some better way ? At first he is nonplussed ; but tell him to dip his sandy fingers in the water. The sand falls away from them. Does not this give him a hint ? Why yes, he bundles the whole heap into the water, and finds he can now pick the pebbles out clean. But this is still a slow process, can he not find one more expeditious ? He has to think, and presently he directs a stream of water on to the heap and washes the sand away, leaving the pebbles clean in no time. A simple lesson. A childish lesson. But we are educating a child ; and which is likely to educate the child better and to train its faculties of thought : such a lesson as I have sketched, or learning the declension of *mensa* ? Which gives the child most knowledge ? Which is the better occupation for its time ?

Nor is it only the child that benefits by such a lesson as I

have described. It is of scarcely less benefit to the schoolmaster. Instead of wearily dragging out the time until the child is ready to 'say his lesson,' the method I suggest exercises the wits of the schoolmaster also. It compels him also to think in order to devise such lessons. It compels him to exercise his judgment and self-restraint so that he shall give no help unless the pupil is at an impassable standstill; and even then shall not show him how the thing is to be done, but shall lead him by subtle suggestion to find out for himself how it is to be done. In short, it compels the schoolmaster to take trouble, and no one likes to take trouble, so that I know I am the voice of one crying in the wilderness; but that in such lessons is to be found the true mode of teaching children to think, there cannot be the slightest shadow of doubt. Nothing worth achieving was ever achieved without taking trouble, and if schoolmasters will not take trouble, there will be no education. But to do them justice, I believe that schoolmasters, at any rate of elementary schools, are anxious to take trouble. I have lectured repeatedly to the Child Study Association, and have found my audience of elementary schoolmasters and schoolmistresses most eager to learn. Their attitude is as different from that of the hide-bound classicist as the water of a mountain torrent from the water of a stagnant pond.

Children are to be taught to think: but this is not all that children are to be taught. They have other faculties besides the faculties of mind, and though it can scarcely be too often repeated that the mental faculties and the bodily faculties grow up together, develop together, and constantly assist and reinforce each other's development, yet for convenience they must be considered separately. Children are to be taught to do things. They are to be taught the ready, accurate, dexterous use of their limbs and body, so that they may achieve with the least exertion the purposes to which their limbs are put to serve.

Human beings have three sets of limbs, or of muscular apparatus that may be so considered: the legs, the arms

and hands, and the organs of speech ; and all of these are to be properly educated in their several ways. In each limb there is a certain natural order of development, both of structure and of faculty, which is observed in the times in which they come into being and into use ; the order, both in time and in severity, in which they are attacked by disease ; and the reverse order in which they recover from loss by disease. The order of development is from the centre to the periphery. First the leg, then the foot ; first the arm, then the hand, then the fingers and thumb ; first the voice, then the articulation of words, and lastly speech, that is, words in such orderly arrangement as to express thought. This is the order in which development takes place, and this is the order in which training should be conducted. Young children should be trained to use their legs, their arms and their voices. Older children to use their hands and to articulate their words distinctly. Training of the fingers and thumbs in fine manipulation, and training in the correct expression of thought in speech should be deferred until a still later age. By this I do not mean that any abrupt transition is to be made. I do not mean that up to its sixth birthday the child is to be trained as to its legs, arms, and voice, and is then to begin to use its hands and to articulate. Such rigid division would be as absurd as the system now in force in our public schools. I mean that at an early age much training should be given to the legs, arms, and voice ; less to the hands and articulation, and least to the digits and to speech ; and as age advances, more and more attention should be paid to the faculties employing the more peripheral parts, while those employing the more proximal parts may be left more and more to take care of themselves.

Whatever means are adopted should be aimed at some purpose that is intelligible to the child, and in which the child is interested. For this reason ' exercises intended to strengthen ' this muscle or that set of muscles should be eschewed. They are repellent at the outset, and they soon grow tedious and disgusting. The maxim of the old

school of pedagogues was that it does not much matter what you teach a child as long as he hates it. Mine would be nearly the reverse, viz., that it is no use trying to teach a child anything unless you can interest him in it. He will never put his mind into it, he will never put his energy into it, unless he is keen about it. Once you have engaged his interest, he will need neither whip nor spur.

For developing the functions of the arms and legs, drill will serve if it is taught in such a way as to interest the children ; and it may be so taught ; but dancing serves far better. Even very young children may be taught morris dancing, may-pole dancing, and other kinds of dance, accompanied by graceful movements of the arms and by singing. In this way all the primitive faculties are exercised and trained together, and the training is a delight to the scholars.

Training of the hands is effected by the use of tools and toys that must be grasped with the whole hand, such as the spade, rake, and hoe ; the hammer, chisel, and plane ; the screwdriver and wrench ; the cricket bat, the tennis racquet, and the hockey club. It is characteristic of our public schools that the training they impart to this set of faculties is limited to playing with toys, such as the cricket bat and the football, rather than to the use of tools ; and that it continues to occupy a very disproportionate share of the school time at more advanced ages, when it should be left behind, and attention devoted to training the finer faculties of digital manipulation and of speech. Up to the age^w of^r six or seven we may occupy most of the scholar's time of training with the training of the arms, legs, and voice. From seven to twelve or thirteen the faculties that employ the hands and articulatory organs may receive most attention ; but at thirteen or fourteen the arms and legs and voice should have been so trained as to need no more attention : the capacities of the hands and articulatory organs should be fully developed ; and the greater part of the attention to training faculty should be given to digital manipulation and to speech.

Training of the voice, both for speaking and singing, should proceed *pari passu* with training of the leg and arm faculties. There is no reason but want of training for the ugly voices of most English people. You cannot make a silk purse out of a sow's ear, and you cannot teach singing or any other form of music to children who cannot tell one note from another ; but there is no reason but want of training why the lower and lower-middle-class Londoner should speak through his nose ; and no other reason why nearly all Englishmen who do not speak through their noses should speak with a contracted throat. A good sonorous chest voice emitted through an open throat is a rarity in this country, and is rare because children imitate their elders and are never taught better. In Yorkshire and Lancashire the singing voice is good, and all classes learn to sing, and sing well ; but the southern untrained singing voice is a raucous abomination and offence. If it could not be made melodious, and I think it might be, it could at any rate be rendered inoffensive by training in early childhood.

When training of the arms and legs ceases to predominate, and training is directed mainly to manual operations, then voice training should be subordinated to training in articulation, a matter which seems to be altogether neglected in our schools. It is difficult to say which is the more offensive to the sensitive ear—the thick, slurring, mumbling, indistinct, h-less articulation of the populace, or the affected drawl of the parson. Articulation is thus thick, mumbling, and indistinct because it is lazy. It is easier to mumble than to speak distinctly, and requires less effort. The only really good articulation is that of actors and of a few public speakers who learn of actors how to articulate their words. Nothing would be easier than to remedy these defects of voice and articulation if only children had good models set before them at the appropriate age, for imitative as they necessarily are, in nothing are children as imitative as in articulation. It is easy for the trained ear to tell by the voice, the articula-

tion, the cadence, and the choice of words what county a person comes from, and the only locality that produces distinct articulators is Wales. The Welshmen whose articulation is over-distinct are those whose mother tongue is Welsh, and who have learned English as a foreign language.

Lastly, at the age of about fourteen, the training in digital manipulation and in speech should become predominant. Not then should they be begun. The child begins to speak before ever it comes to school ; and it may begin to use its pen, its pencil, its paint brush, its needle, its crochet-hook, its awl, its pocket knife, and its box of tools long before the age at which its training in the precise, accurate, nice, rapid, easy movements of its fingers should predominate ; but until the child passes into its teens, training in these movements should be at first sporadic, seldom, and for short periods, and should only gradually assume an important part in life. The reasons are good and conclusive. In the first place, when the child is small, the fingers and the work that they hold are but a short distance from the eye ; and the frequent and prolonged accommodation of the eye on near and small work, when all the tissues are still plastic and easily modified, tends to produce myopia, and in very many cases does produce myopia. The second reason is more important, and has already been given. It is that all the bodily arrangements for the use of the fingers are late in making their appearance, and late in completing their development. Bones, muscles, nerves, and most of all the nervous apparatus in the brain that actuates and controls the digital movements, are late in attaining completion ; and though they will never attain completion or efficiency without use, they cannot attain completion or efficiency until the time of life for their completion is arrived. As well might we expect the beard to grow on the chin of a child of ten, as expect nice, accurate, precise digital work of a child of six. But when the time of completing these nervous arrangements is

arrived, then it is necessary to give them work to do, for without appropriate exercise they will never be completed. Hence at this age the time should be increased that is spent in drawing, in writing, in needlework, and so forth, and from this time forward more time should be given to them and more effort spent upon their training. In this matter again, the public schools exhibit their normal inefficiency. The man who has been 'educated' at a public school is usually to be known by the vileness and illegibility of his handwriting.

At this age, too, speech, both written and oral, is to be cultivated. Children are now to be taught to express themselves in propositions. It is assumed that by this time their voices have been trained, their articulation brought up to standard, and that they can write with ease and accuracy as far as the formation of words is concerned. They are now to be taught to put their words together into propositions, to compose their propositions of appropriate words disposed in the right order, so as to express their meaning accurately, to be easily understood by the hearer or reader, and to serve most appropriately and justly the purpose in view.

In all these aspects the training of faculty goes on through life. In none of them need it end while life lasts ; but in all of them it is important that it should be begun in time, that it should not be forced into preponderance before the proper time of life is arrived, and that it should be pursued upon right principles.

CHAPTER IV

THE IMPARTING OF KNOWLEDGE

THE third in order, as well as in importance, of the great aims or purposes of education is the imparting of knowledge to children. Life is the pursuit of purposes by means of action in and upon circumstances, and in order that action may be effectual, the circumstances in which it takes place must be known. This seems manifest enough. If we desire to walk to a certain place, we must know in what direction it lies. If we want to acquire a certain thing, we must know where it is to be had. If we want to communicate with a certain person, we must know where he is to be found. If we want to make a certain thing, we must know of material suitable for the purpose; and if we want to shape that material to our purpose, we must know its qualities. We cannot attach iron to iron with a needle and thread, nor can we join linen to linen by putting it into the fire. When the cook wants to make a pudding she must know what materials she has, how much of each of them to use, and in what way they are to be manipulated. When the engineer wants to build a bridge, he must know the width of the gap to be bridged, he must know what material is available, what weights the bridge is expected to bear, where the material is to be obtained, and a great many other circumstances. In short, knowledge is necessary to action, and if we are to act efficiently and successfully, we must first know. These are such obvious truisms that it seems absurdly redundant and superfluous to draw attention to them. It would seem that we may safely take for granted that one of the main purposes of

education is to furnish the child with an equipment of knowledge, and of such kinds of knowledge as shall be of service in achieving the purposes for which life is to be lived. But it would be very unsafe to take this for granted. We have ample evidence, some of which has already been adduced, that the present system of education as pursued in our great public schools does not in fact furnish the scholars with any knowledge at all. At the end of ten years they leave school with their minds blank. They know nothing at all. And we are now to notice that this is not only the acknowledged and notorious effect of this system of education: it is also its scarcely concealed purpose. The system is carefully devised and arranged so that the children shall be kept in ignorance. The schoolmasters say to themselves, Evil, be thou my good: Ignorance, be thou my knowledge. The proofs of this are irrefragable.

In the first place, it is a well-known maxim of law that everyone is presumed to intend the manifest consequences of his own acts. If a man wilfully strikes another man violently on the head with an iron bar, the law presumes, and rightly presumes, that the assailant intended to kill his victim, or at least to do him grievous bodily harm. The classical system of education is just as well calculated to leave boys in ignorance as the striking of a man on the head with an iron bar is calculated to do him grievous bodily harm; and if this result of the classical education could not have been foreseen by those who practise it, though it could be foreseen by anyone else, yet the experience of many years and many generations has established it beyond dispute, and it is now notorious. It is an accepted maxim that one's education begins after one has left school; and that the first step in education is to forget whatever has been learnt at school if anything should have been learnt.

In the second place, lest perchance anything should be learnt at school, the greatest pains are taken to select subjects that can by no possibility be of the slightest use

in after life. It is not that here and there a useless subject has crept into the curriculum from want of vigilance or want of appreciation of its uselessness ; it is that the authorities have ranged far and wide over the realm of knowledge with the express purpose, or at least with the unquestionable result, of selecting those subjects that shall be entirely useless, and rejecting those that appear to be smirched with any taint of utility ; and lest in spite of this precaution some modicum of utility should attach to these subjects, they are taught in such a manner that a large proportion of the scholars cannot or do not learn them. If a committee of men who have succeeded in various callings in life were constituted for the purpose of compiling a black list of the most useless departments of knowledge, in order that the teaching of such knowledge should be excluded under severe penalties from the school curriculum, can it be doubted that they would place first on the list the very subjects to which the most fashionable schools now give most attention, and on which the greater part of the time in these schools is wasted ? If some malignant and ingenious devil were to be entrusted with the task of discovering a subject of education that should be of all others the most utterly useless, could he possibly find one more suitable to his purpose than a language that has not been spoken for thousands of years, and that will never be spoken again ? Is it possible to find a subject that shall approach in uselessness such a subject as this ? The task is extremely difficult, but it has been achieved with surprising success. To the knowledge of languages that have long ceased to be spoken is added a knowledge of the rulers of the people who spoke them. Children are taught the names of these rulers, the order in which they succeeded one another, the wars in which they engaged, the rivals they murdered, the dates of their battles, and so forth. Can we match this in uselessness ? Yes. We can teach our scholars the mystical speculations of muddle-headed men who have written unintelligible nebulosity which the teachers of it them-

selves do not profess to understand, and which is called Moral and Metaphysical Philosophy ; and almost as good, we can find a subject which even a teacher of it calls a silly game, and teach it under the imposing name of Logic.

The great public schools mould their system of education on the fashion set by the old Universities of Oxford and Cambridge, to which the majority of the boys in these schools in time proceed ; and the Universities of Cambridge, and especially of Oxford, mould their system of education in accordance with the requirements of the Civil Service Commissioners, who prescribe the subjects in which candidates for the Civil Service shall be examined. The whole system of education of the class of the population that almost monopolizes the Civil Service of this country, and that constitutes by far the greater part of both Houses of Parliament, that sets the fashion and constitutes the model of what are considered educated men, rests in the hands of two men, one of whom does not act. In one man alone this enormous power and influence are concentrated, and very few people know who he is or what qualifications he may possess for his task. For my part, I do not pretend to know ; but it is certain that such a post would not be given to any man who had not been brought up under the existing system, and was not steeped and saturated in its traditions. How faithfully he carries on the traditions of the system in which he was reared may be judged from the subjects he prescribes for the examinations of candidates for the Civil Service. The cult of uselessness is most carefully conserved. It has been found impossible to restrict the examinations wholly to Latin and Greek, but the model has been adhered to as closely as possible. The chief subjects set are still languages, and still dead languages. The students are examined, not in living Hindustani, but in dead Sanskrit ; not in modern Persian, but in ancient Persian ; not in modern French and German, but in mediæval French and German ; not in modern English, but in Anglo-Saxon ; and of these languages they are to have not a living

knowledge but a dead knowledge. They are not required to converse in them, they are required to have a knowledge of their grammar and syntax. The purpose of language is to enable us to communicate our thoughts and other mental states and processes to other people, and this purpose is eminently useful. It is therefore excluded from the curriculum.

The classical system of education is *primâ facie* so manifestly and extravagantly wrong, and it results in such utter ignorance on the part of its victims, that its continuance in the face of these objections at once raises a presumption that it must have some merit that does not appear on the surface, that it must confer on its scholars some benefit, that there must be some underlying reason, not superficially apparent, but real, vital, and imperious, for its retention. It is incumbent on us therefore to examine with care the reasons alleged in its favour. These reasons, as far as I have been able to gather them from the rather confused and usually angry writings of the advocates of the classical education, are as follows: It provides an unsurpassable mental training. It is necessary for the proper understanding and use of the English language. It gives to those who have been through it access to the Greek and Latin literature, the highest achievement yet reached by the human mind. It gives us a knowledge of the origin and root of our civilization. And finally, it fosters high ideals, and supplies an antidote to gross, base, sordid materialism, which in the absence of the classical education would steep and sink us all in swinish crapulence. Let us consider these reasons *seriatim*.

I. The classical education provides an unsurpassable mental training. Does it? I have already referred to this matter, and in doing so I laid down the unimpeachable canon by which all discussion must abide, viz., *Whoso makes an assertion, on him lies the burden of proof*. The classicists assert, or have asserted, I have not seen it so contended recently, that a classical education provides

an incomparable mental training ; and the assertion has been repeated from mouth to mouth and from generation to generation. But upon what evidence does it rest ? I know of no direct evidence, and on an examination of the methods of teaching, which I am quite prepared to admit may be better now than they were in the early '60's of the last century, I find no evidence. The learning of declensions and conjugations, which forms the basis of the classical education, does not train or strengthen the mind in any respect except as to the verbal memory, a very subordinate and unimportant faculty. The translation of passages from one language into another affords some training in the choice of words. The looking out of words in the dictionary affords some small exercise in industry ; but beyond this it is difficult to see that the classical system affords any mental training at all ; and even this amount of training could be equally well imparted by a similar method of learning any other language, living or dead. As far as mental training is concerned, it seems that education might equally well be founded on the teaching of the Basuto or the Somali language, except that the vocabulary would be less copious.

But though there is no direct evidence that the classical system is of any value as mental training, there is certain indirect evidence that has recently been brought forward. It is said that certain employers of labour have expressed a preference for those young men who have received a classical education rather than for those who have been educated on what is called the modern side of public schools. They find, so it is said, that the classically trained boy becomes a man more adaptable, more easy to train in business methods, and more generally useful than the boy who has received the education of the modern side. If there were reason to suppose that this difference is due solely to the training they have respectively received, all that this evidence goes to show is that the classical training is better than the training of the modern side, or we might say is not as bad. But there is

no proof and no presumption that training has anything to do with the difference. The schools are modelled upon the requirements of the universities ; and there are many scholarships to be gained by classically trained youths : none to be obtained by youths otherwise trained. Consequently, as the reputation of a school depends in large measure upon the scholarships gained by its scholars, every inducement is held out to the clever boys to join the classical side : care, time, attention, and tuition are lavished upon them, and the dullards are allowed to have the training of the modern side. Is it any wonder that the boys of the classical side, though they leave the school with their minds blank, make a better show in after life ?

2. A knowledge of Latin and Greek is necessary for the full comprehension of the English language, and for a mastery of its use. But for a consideration that will be subsequently mentioned, it is strange that this contention should be seriously made, for it is opposed to probability, and it is flatly contradicted by the evidence. It is opposed to probability because the structure and framework of the English language are derived, not from either Latin or Greek, but from Anglo-Saxon and dialects allied to Anglo-Saxon. If, therefore, a knowledge of any other language were necessary to the full comprehension and mastery of English, it is a knowledge of Anglo-Saxon rather than of Latin or Greek that would be required ; but we never hear of the universal cultivation of Anglo-Saxon being advocated. All that Latin and Greek contribute to the English tongue is a part of its vocabulary, and certain constructions that are pedantic, that are foreign and alien to the genius of the English tongue, and that are eschewed by good writers. The probabilities, therefore, are against this contention ; and the evidence also is against it. It is not true that classical scholars write better English or speak better English than those who have had no such education. The truth is the very reverse. Seeing that for many generations, and until quite recently, the classical education was the only education, it is not to be wondered at

that many of our best writers have received this education ; but it is also true that in the first place, a surprising number of writers of the very best English, including John Bunyan, Daniel Defoe, William Cobbett, Shakespeare himself, and John Bright, have had no classical education at all, or very little ; and it is true that the writers of the very worst English have one and all received the classical education. If we seek the writers who have written the very worst jargon that passes as English, we shall find them in Lyly, in Sir Thomas Browne, in Thomas Carlyle, in Browning, and in certain living philosophers, all of them classically educated, and some of them steeped during their lives in Latin and Greek literature. This stock argument in favour of the classical education may be regarded, therefore, as disposed of.

3. The classical education gives to those who have been through it a knowledge of Latin and Greek literature, the highest achievement of the human mind. Does it give this access ? and is this literature the highest achievement of the human mind ? What is the evidence ? A certain proportion of those who have been through the mill of the classical education do become able to read Latin and Greek with moderate fluency, and without very frequent recourse to the dictionary, and a small proportion become able to read them quite fluently ; but both proportions are small, the latter very small. And acquirement of the ability to read Latin and Greek by no means necessarily carries with it the acquirement of a taste for reading them or of a desire to read them. On the contrary, the method by which they are taught produces in many of the scholars such a detestation of these languages that they look forward with longing to the time when they will have done with them, and schooling once over, they never again open a Greek or Latin book. I have made many inquiries among schoolmasters, university Dons, holders of a first-class *in literis humanioribus*, and less distinguished public school and university men, and the general opinion is that not more than one-tenth of those who have been through

the mill attain an easy mastery of the reading of these languages, and not more than a tenth of this tenth ever opens a Greek or Latin book after school is left behind.

We have now to ask what is missed by those who thus neglect their opportunities, or are unable to take advantage of them. What is the value of Latin and Greek literature? Latin literature will be admitted by the most bigoted classicist to be very inferior to Greek, and I do not think anyone who holds the enormous superiority of classical literature would rest his claim upon the literature of Rome. There were a very few great writers in Latin, and they have left for us a very few meritorious works, but there is also an immense deal of trash. Macaulay was probably as well acquainted with Latin literature as any man since the revival of learning, and Macaulay speaks of himself as an enthusiast in classical literature and had a very enthusiastic, but a discriminating admiration for it, and this is what he says: 'I have been employed in turning over several third-rate and fourth-rate [Latin] writers. After finishing Cicero, I read through the works of both the Senecas, father and son. . . . As to the son, I cannot bear him . . . There is hardly a sentence that might not be quoted; but to read him straight forward is like dining on anchovy sauce. I have read, as one does read such stuff, Valerius Maximus, Annæus Flaccus, Lucius Ampelius, and Aurelius Victor. I have gone through Phædrus. I am now better employed.' Again: 'I have read through Seneca, and an affected, empty scribbler he is . . . I have read Pliny the Younger. Some of the Epistles are interesting. Nothing more stupid than the Panegyric was ever preached in the University Church.' Again: 'I have gone through all Ovid's poems. I admire him, but I was tired to death before I got to the end. . . . As to other Latin writers, Sallust has gone sadly down in my opinion. Cæsar has risen wonderfully.' Again: 'I know no declamation in the world, not even Cicero's best, which equals some passages in the *Pharsalia*. As to what were meant for bold poetical flights—the sea fight at

Marseilles, the Centurion who is covered with wounds, the snakes in the Libyan desert—it is all as detestable as Cibber's *Birthday Odes*.' Latin literature, therefore, in the eyes of this very warm but discriminating admirer, is much like English ; that is to say, it contains a few masterpieces, and a great deal of rubbish. By all means let us allow the merit of the masterpieces, but do not let us be bounced into the belief that the whole, or even that a large proportion, of Latin literature consists of masterpieces. Whether the advocates of the classics wish to establish this belief I do not know ; but undoubtedly they speak of Latin literature as a whole in such a way as to convey that they desire to establish this belief. It is surely not worth while to spend ten years of one's life, and those the most receptive years, in trying to acquire the ability to read a literature thus described by an enthusiastic but discriminating admirer.

Greek literature is of course much more copious than Latin, and reaches, in its best examples, a much higher standard, but it has as a whole been greatly overpraised. The enlightened critic already quoted speaks of 'the stupid trash of Diodorus,' and says he is 'a stupid, credulous, prosing old ass.' Of another Greek writer he says his work is 'a most stupid, worthless performance, below the lowest trash of an English circulating library.' Of another, he says it is 'the best of the Greek Romances, which is not saying much for it.' It would appear, therefore, that Greek literature is not wholly composed of masterpieces, as we should judge from the utterances of its admirers that it is, but is much like other literatures, in that it contains here and there a plum, imbedded in a deal of insipid and indigestible suet pudding. But what about the plums? What of the masterpieces? Few as they are, are they not on such a level of superhuman excellence as to justify the expenditure of ten of the most receptive and critical years of life in acquiring the ability to read them in the original? Well, I do not presume to decide, nor need I, for I can call to witness one who was

not only a competent classical scholar, but was himself a great poet, and what is more to the purpose, a great critic. By common consent of all classical scholars, Homer was the greatest of Greek poets, the greatest poet of antiquity, a poet to be ranked for all time in the front rank of poets. Macaulay speaks of his prodigiously increased admiration for Æschylus, and places him above every poet of antiquity, Homer only excepted. Yet Dryden has left on record his opinion that it would require the addition of all Dante's (or Virgil's) greatness to raise Homer to the level of Milton.

The fact is, of course, that in the time of More and Erasmus, of Ascham and Colet, it was natural that classical literature should be extolled to the skies, for there was no vernacular literature to compete with it or to compare it with, and the only literature with which it came into comparison consisted of the enormous and arid volumes of the Fathers of the Church, of childish fables about the Lives of the Saints, and of the dreary ploughing of the sands of the Scholastic writers. Compared with such a literature, the writings of the ancient Greeks and Romans might well seem miraculous, blazing suddenly as the former and much of the latter then did upon the horizon of human knowledge. In comparison with the only literature with which they were acquainted, the 'stupid trash' of that 'stupid, prosing, credulous old ass,' Diodorus Siculus may well have appeared to the contemporaries of Erasmus a masterpiece of human genius; and it is not wonderful that, once acquired, the reputation has clung to classical literature ever since. Tradition, convention, custom, prejudice, interest, the pride of caste, the timidity of the few discerning, the ignorance of the great majority, combined to erect a fortress of superstition which has lasted impregnable down to this day; but it is only superstition, and its ramparts are at length beginning to crumble under the bombardment of reason. That great works were written in Greek, and even in Latin, would not be denied except by the

ignorant or the foolish, but these works are no longer the only great writings in existence. There is a great vernacular literature in this country, a great literature in French, a great literature in Italian, a great literature even in Russian, a considerable literature in German and a considerable literature in Swedish and Portuguese. If any one of these literatures were suddenly to burst upon a country that was ignorant but craving eagerly for knowledge, it would be idolized and deified as the Greek and Latin literatures were in this country in the sixteenth century ; but we do not now compel all children to learn French, Italian, Russian, German, Swedish and Portuguese in order that they may gain access to these literatures. Moreover, it is not to be forgotten that, while Greek and Latin literature contain a few masterpieces, a great deal of silly speculation, a great deal of stupid trash, they also contain a great deal that is shamelessly indecent, and it is not very edifying that this literature should be taught in our schools, and extolled to the skies by reverend Fathers in God.

4. The classical education gives us a knowledge of the origin and root of our civilization. This reason has been only recently alleged, but it is to be found in a manifesto published in *The Times* in praise of the classical education. The assertion is manifestly and flagrantly untrue. It is indeed true that our literature has been to a great extent founded upon that of the Greeks and Romans, but it is not at all true of our civilization. Much of the literature of this country in the seventeenth and eighteenth centuries is a base imitation of that of Rome and Greece. It is full of allusions to Chloe and Daphne, to Lalage and Neæra, to Damon and Strephon. It is full of allusions to warbling birds and babbling brooks, made by writers who lived in Grub Street, and had never been further into the country than Clerkenwell or Charing Cross. It is full of references to Pericles and Themistocles and Cleon, to Cato and Brutus, to Achilles and Ulysses. But though our literature is founded upon that of Greece and Rome, our

civilization is not. In Scotland and in Holland the law is based upon the *Corpus Juris Civilis*, the law of Rome. In England it is the Common Law, the direct development of the customs of the Angles, the Saxons, the Jutes, and the Danes. The fabric of our society has grown, not from that imposed by Rome upon the Britons, but out of the Village Community and the Feudal System. Our institutions, our customs, our traditions, our beliefs, owe much indeed to Rome, but to the Rome of the Popes, not to the Rome of the Cæsars ; and to Greece they owe nothing at all. This reason for maintaining the classical education was unfortunately chosen, for its manifest falsity shows that it is not the real reason, but was faked up to support a conviction that had already been reached, and for which reasons had to be found, a feature characteristic of all the reasons alleged in support of the classical education. They are hollow. They are lacking in sincerity. They are lacking in truth. Candid examination shows that they are not the reasons on which the practice is in fact founded, but that, the practice being in existence and requiring justification, its defenders cast about for reasons that might seem to justify it, and hit upon these, not always very judiciously.

5. The classical education is spiritually elevating, and saves us from becoming sunk in a sordid materialism. It fills the mind with great ideals, with aspirations after higher things, and without it we should be grovelling materialists, dead to all the finer feelings and aspirations of human nature. This is the plea that is most frequently and persistently advanced for the maintenance of the classical system of education, and is the main weapon in the armoury of the defenders of the system. It is advanced with the utmost confidence and assurance, as if it were a truth so indisputable and so manifest that no proof and no evidence of it is required. At any rate, I speak with confidence when I say that none is ever offered. This won't do. Again I state the primary canon of controversy : *Whoso makes an assertion, upon him lies the burden of*

proof. What are the *a priori* probabilities? What is the *a posteriori* evidence? I know of none. I have never met with any. None, as far as I know, has ever been alleged by any of the many disputants who have brought forward this reason as conclusive and final. It may be so perhaps, but is it so? What are the probabilities? I presume it would not be contended that the filth of Aristophanes, and the awful revelations of Juvenal of the vices of Roman society in his time, are spiritually elevating, and likely to save us from sinking into sordid materialism. I presume that the trash of the writers referred to by Macaulay would not make an effectual barrier against materialism. The *Odes* of Sappho are scarcely calculated to instil purity into the immature mind of youth. We must look to other writers for this elevating and spiritualizing influence. No doubt; but still, it is not to be forgotten that what is eulogized by the advocates and laudators of classical literature is this literature in bulk. No distinction is made. We are enjoined to study Greek and Latin literature, as if it were all upon the same superhuman level. Let us give these enthusiasts credit for more discretion than they exhibit, and suppose that when they speak of classical literature being an antidote to materialism they mean only the masterpieces of classical literature. And let us ask whether there is anything more elevating, refining, and spiritual in the works of the greatest Greek writers than in our own vernacular literature. Homer is by common consent the greatest of the Greek poets, but there is nothing very elevating, refining, or spiritual in the dreary catalogue of the ships, in the rhodomontades of the heroes before they come to blows, or in the brutalities that they inflicted on one another. Here and there we find a beautiful passage, such as the scene between Andromache and Hector, but there is nothing in the *Iliad* more affecting, more pathetic, more elevating, than is to be found in *King Lear* or in *Hamlet*; and it does not require ten years of drudgery to enable us to read Shakespeare. The

doctrine that is the main theme of the great Greek dramatists is the doctrine of inexorable fatalism, and this is not usually considered an elevating doctrine, but quite the reverse. There remain the speculations of the philosophers, and of these it must be said that they display, like the speculations of the Schoolmen, an exquisite subtlety that leads to nothing, and loses itself at last in barrenness, as the waters of some rivers lose themselves in the sands of the desert. No one can read Plato without understanding quite well why the Athenians poisoned Socrates, and this is about the only thing that the reader will understand clearly ; and it will be strange if his comprehension is not accompanied by some regret that they did not poison Plato as well. Aristotle was a marvel to Avicenna, but he is no marvel to those who are acquainted with Hobbes and Locke, not to mention Descartes or Pascal. Centuries of extravagant laudation have enveloped Aristotle in such an atmosphere of reverence that few people are able even now to estimate calmly and justly his performance, that, wonderful as it was no doubt in his own age, is but moderate by the side of modern achievements. No. The *a priori* probabilities do not favour the notion that we must necessarily go to the Greeks to save ourselves from sinking in the slough of materialism ; and what of the *a posteriori* evidence ? Do we find in fact that those who have studied the classics uniformly devote their lives to high ideals, and that those who have not had this advantage are sunk in materialism ? Are there no scandals in the lives of public school and university men ? Does none of them ever embezzle trust funds or run away with his neighbour's wife ? And was John Bunyan sunk in gross materialism ? Did Saint Teresa or Elizabeth Fry derive the inspiration of their holy lives from Plato or Æschylus or Aristotle ? Come, gentlemen, if you need, as assuredly you do, an argument in favour of retaining the classical system of education, do try to find a better one than these. If you cannot see their futility, your system must be even more blinding to the

mental eye and destructive of the intelligence than it is said to be.

No. In this, as in all customs that are fossilized, and are followed only because they are customs, and because vested interests have grown up about them and become intertwined with them, the reasons alleged in its favour are not the real reasons, but are faked up because reasons must be found, and these are the best that can be found. The real reason is that given on a previous page. The teaching of Greek is continued by the universities and schools of this country for the same reason that the institution of caste is continued by the Brahmins. It is, in fact, very much a matter of caste. Those who have acquired the ability to read Greek look upon themselves as social Brahmins, and look down from a height of social superiority upon those who have not this ability. I am acquainted with a lady who speaks and reads English, French, Italian, German, Russian, and Spanish, and has a wide acquaintance with the literatures of all these tongues, yet she is regarded with scorn by her brothers as uneducated, because, though they have none of these accomplishments, they have some knowledge of Latin and Greek, and she has none. Was there ever a greater absurdity?

Whatever children are taught, therefore, they should not, unless they have an evident natural bent towards the learning of languages, be taught Latin or Greek. There was a time, indeed, when the learning of Latin was necessarily the first step in education, for then Latin was a living language, the *lingua franca* of Europe, the language in which all lectures were delivered, all books were written, all diplomatic correspondence conducted, all legal documents expressed; but then Latin was learned as all languages should be learned, not by the stupid process of the grammar book and the exercise book, but by hearing them spoken and speaking them. Now it is an anachronism and a burden.

CHAPTER V


THE IMPARTING OF KNOWLEDGE (*continued*)

WHAT, then, are children to be taught? What sort of information is to be imparted to them? To find an answer to these questions we must go back to first principles. Education should be preparation for life. Life is action in circumstances for the attainment of ends. In order to strive successfully to attain our ends we must know the circumstances in which we are to act. The knowledge that should be imparted to a child is knowledge of the world in which he lives, in which he must act, in which are the materials that he must mould to his purposes, in which are the forces he must utilize, and the obstacles he must surmount. The child is to be taught a knowledge of the world around him. He is not to be taught a knowledge of words except in as far as a knowledge of words is necessary for the attainment of a knowledge of things. He is to be taught a knowledge of things. The questions are, What things is he to be taught? In what order are they to be taught? And by what methods are they to be taught?

Men and women have to live their lives in the world into which they are born, and in order that they may live their lives profitably and successfully, they must know the constitution of this world in which they live. They must know its physical constitution. They must learn the physical properties of bodies, the physical constitution of the parish, the country round it, the country of which it forms part, of the continent, the earth, the solar system, the universe. They live in a world peopled by living things, on which they must act, and which will act on them.

They are therefore to learn the properties and functions of living things, both animal and vegetable, and the main principles that regulate normal life. They live in a social world, peopled by human beings like themselves, on whom they must act, and who will act on them. They are therefore to learn the capacities and limitations of human nature, and their duties and obligations towards their fellows. They live in a political world in which there are governors and governed of all grades of authority, in which customs, laws, and regulations are to be observed; and these they are to be taught, and the necessity of observing them is to be taught. They live in a world in which the most of them must earn their livelihood and all must administer their means, and therefore they should be taught the principles of earning and spending.

‘What!’ the reader will say. ‘All these complicated things to be taught to children! How absurd! How impossible! It is better that they should go on learning Latin and Greek. In these there is at least some approach to finality.’ To this I would reply that at the present time, and in all past times, children do learn and have learnt all these things; and that in this country they have learnt all these things in addition to Latin and Greek. The question is not whether they shall learn these things, but whether these things should be taught to them upon a rational system, or whether the children should be left, as heretofore, to pick them up as best they can, unsystematically, and often wrongly and mistakenly, from haphazard traffic with the world of experience. That is the choice that we are to make, a choice from which there is no escape.

 The first two of these subjects, the physical world and the world of living things, constitute the subject matter of what is called natural science, and here we find the proper position of natural science in a rational scheme of education. It is among the things to be taught. It is among the things to be taught early. By this I do not mean that every elementary school is to be equipped with a laboratory

in which young children are to potter about with test-tubes and reagents. The facts of natural science are of all degrees of complexity, and the reasonings are of all degrees of elaborateness. When a child learns from experience that a stone is hard and that a weight falls, he is learning facts of physical science in the only way in which such facts are worth learning ; and when he generalizes from those experiences and reasons that stones are hard and that weights will fall, he is conducting scientific reasoning on a very elementary plane. The difference between common knowledge and scientific knowledge is merely that the one is an agglomeration without order, and the other is an orderly and systematic arrangement ; and it is just as easy to arrange facts in order as to leave them in disorder. There is nothing mysterious or wonderful or difficult about science. The word is used both by scientific and by unscientific men as a bogey and a bug-bear. It is nothing of the sort. It means merely knowledge orderly arranged.

In every department of knowledge there is every grade of simplicity and ease, of complexity and difficulty. Every baby can learn that the things it can hold are heavy : it needs an intellect much more developed to grasp the notion of mass-acceleration ; and to form a clear notion of the nature and constitution of the atom is beyond the competence of the most able and experienced philosopher. Yet these three notions all belong to the domain of elementary physics. It is not, therefore, so much the domain of knowledge, as the stage of advancement in that domain that we are to consider in choosing the subjects that are to be taught to children. Even the youngest child can be taught by actual observation that some things, such as water, can exist in the three states of solid, liquid, and gas, and can be changed from one to the other and back again ; and that other things, such as wood, cannot be liquified, but can be gasified.

This is not the place for a syllabus, any more than it is the place for a time-table, and I need enumerate only in

the barest outline the subjects that should be taught, but much more insistence must be laid on the method of teaching than on the subject taught. Sir Clifford Allbutt goes so far as to say, 'I care not a rush what a boy is taught.' This is the natural expression of impatience at the results of a vicious system of teaching ; but Sir Clifford Allbutt would be the first to admit that, given the proper mode of teaching, it is better to teach properly knowledge that is universally useful, such as the physical properties of bodies, than to teach properly knowledge that is universally useless, such as heraldry, or the conjugation of the verbs of a language that is never spoken.

Physiography should be learned by every child, but it should be learned, not by the cart-before-the-horse method by which everything is taught in schools ; not by beginning with the globe and working down through the continent and the country to the county and the village ; not by repeating the words that are read in books, which is no learning and leads to no knowledge ; but by a method precisely the reverse. It should begin with the examination of the playground, and proceed to examination of the surrounding town or village, of the fields, the ditches, the streams, the mounds, hills, dales, and valleys ; and when these have been traversed and examined, when plans can be read and made of them, then maps will begin to have a meaning, and these may be brought into use. It is no great mental feat for a child to discover for itself that water runs downhill, that one ditch leads to another, that the junction of two ditches makes a bigger stream ; but by these trifling observations the formation of rivers may be understood. Any child can see that water lies in the lowest level, and that if there is no outlet, the ditch will form a pond ; and thus it may understand the lake. Nor is it enough, nor would it be true, to let the child grow up in the belief that the landscape he sees, the course of the streams, the relief of the land, have always been such as they are, and will remain unchanged. He is not to be told, but is to be led to find out for himself, that the

hills and ditches and streams after rain are muddy. He is to be led to see that the mud comes from somewhere and goes somewhere else, and so to reason for himself that if this goes on indefinitely, the hills will waste away, and the ponds will be filled up. He is to be brought to remind himself that the ponds do get filled up, for they have to be periodically cleaned out ; and thus he gradually becomes familiarized with the strange notion that nothing remains the same. Everything is changing. Change is the law of the universe. Tell him this, and the words are empty. They mean nothing to him. Lead him to find it out for himself, and not only does the knowledge grow to be a part of his nature, not only is the process of discovery in itself delightful, but all the while he is educating his faculties, developing his powers of observation and of thought, building up both mind and nervous process, and preparing the way for fresh discoveries. Thus geography, physiography and geology become as closely connected in his mind as they are in nature, and every fresh discovery in one leads to more knowledge of the others.

The knowledge of living things is to be acquired in the same way ; not out of books, but by actual observation of the things themselves ; and to this end there is nothing so helpful as the cultivation of a plot of ground. The cultivation of a rod of ground, or even of a yard of ground, is an education in itself, and a means of education that may and should be supplemented, but that cannot be bettered. In this, as in everything else, the child is to be guided and led to find out for himself. He is not to be told. That is the lazy and useless method, lazy and useless alike for the child and his teacher. It is a sterile method, and leads to nothing. After what has been said it is unnecessary to go into detail, but consider how much a child learns of the nature of the world in which he lives, and how much he educates, develops, and strengthens his faculties, both of mind and body, by tilling a patch of ground under intelligent guidance—under guidance that keeps him doing and doing, thinking and thinking all the

time. The doing enables him not only to do better, but also to think better ; the thinking leads not only to better thinking, but to better doing. He is not to be told. He is not to be warned of his mistakes. Let him make mistakes. It is by making mistakes and recognizing mistakes that he will best learn not to make more. He may begin with an analysis of the soil. A matter for a skilled agricultural chemist? Not a bit of it. Analysis is a hard word, but any child can do the thing it stands for. Any child can pick out the stones and put them into a heap. Any child can sift out the smaller stones with a sieve. Any child can treat a part of the remainder with vinegar and notice if it fizzes, and so discover the presence or absence of chalk. Any child can weigh another part of the remainder, dry it on a shovel over the fire and weigh it again, and so discover what proportion of moisture it holds ; roast it on the same shovel, and weigh it once more, and so discover what proportion of organic matter it contains. Organic matter, a very scientific expression, and enough to frighten any child ! but the thing it stands for is simple enough. It means the dead remains of vegetables and animals, remains of which all cultivated soil is full. When this analysis is made, a valuable guide is obtained as to the fertility of the soil, and as to what ingredient is wanting in it. In the operations of digging, trenching, hoeing, raking, the child is exercising and cultivating his bodily faculties. In weeding he is exercising observation and discrimination as well. In setting out his ground, in selecting the site and proportion of ground for this and that kind of seed, he is exercising judgment and foresight. If his crops succeed, he has the unsurpassable gratification of success ; if they fail, he is to find out the cause of their failure ; and for this, observation, reasoning, and it may be experiment, are necessary. In the course of his gardening he learns the morphology and physiology of vegetable life, and along this path he may be allured, for it is most interesting to most children. He learns the astonishing and enthralling process of organic

growth and development. He sees before his eyes the seedlings grow into mature plants, and produce flower and seed. He learns the inter-dependence and inter-relations of animal and vegetable life. He learns how the dead animal fertilizes the soil for the growth of the vegetable, and the vegetable in turn serves for food for the animal. Properly guided, he learns how many scores of seeds lie dormant in every square foot of ground, and of how many different kinds they consist, how some are crowded out, stifled, and die, while others succeed, flourish and maintain their vigour. He learns many of the innumerable devices by which different plants cunningly contrive in different ways to secure their share of light, of air, of space, of food, to repel or avoid, or hide from the animals that would consume them, to attract the insects necessary for their fertilization, to guard against drought, to protect their pollen, to disperse their seeds, and scores of other particulars. Besides all this, he becomes conscious of wants. He wants a tool that will do this, or an appliance that will do that. He wants a hook that he can insinuate between his plants to hook out the weeds ; he wants a net that will protect his seeds from the birds ; and the school-master who knows his business will not permit him to buy them. He must design them, and he must make them himself. But he does not know how ? he has not the skill ? Then he has a strong motive to learn how ; he has a strong motive to acquire the skill. Let him try, and if he does not succeed let him have the minimum of assistance and guidance that is necessary to enable him to succeed. Some of his crops will fail. Some of his plants will die. Some of them may become diseased. Here is more material for thought, more opportunity for observation, for experiment, for tracing the relation of cause and effect, for comparison and discrimination of conditions. Why do some fail, some die, some become diseased, and others flourish ? It is for the child to find out. He is not to be told. He is not to be shown. A hint, a suggestion, may be given. A question may be asked. He may have his

face turned in the right direction and his feet placed upon the path ; but he is to follow the path by his own efforts, on his own feet, to wherever it may lead him. I can imagine the scorn with which a classical schoolmaster would compare these proceedings with the ideal process of learning the declensions and conjugations by rote, and the fine contempt with which he would ask whether this could be called schooling. Well, frankly, it cannot. But it is very good education. It is damned in the eyes of the classical schoolmaster, first, because it teaches a knowledge of what may be useful ; second, because it teaches a knowledge of things and not of words ; third, because it savours of the abominated ' science ' ; fourth, because it teaches knowledge in the only way in which knowledge can be taught—by doing : by acting ; and fifth, because the child likes it. He is interested in it. He is eager about it. He thinks about it, talks about it, reads about it, of his own free will and desire. Could anything be more completely hateful to the classical master ?

Having learnt by his gardening activity the properties of living things, vegetable and animal, for gardening cannot be pursued without learning of both vegetable and animal life, the next step is to teach the child some knowledge of human nature and human capacity. Here its interest in narrative and the drama are to be engaged. These interests are strong at every age. We see the interest in narrative displayed by narrow undeveloped natures in their love of gossip, and in more developed natures in their love of the novel and of history. We see the love of drama displayed not less in those who act than in those who enjoy witnessing acting. In children both passions are strongly developed. The most restless, boisterous child can always be kept still by telling it ' a story,' and to be allowed to act one is its keenest delight. Here we depart from our rule of learning by doing, but in this matter the departure cannot be helped. It is only thus that children can be made acquainted with heroism, with endurance, with persistence in the face of danger and

difficulty, and thus have held before their eyes models for hero-worship and admiration. Their knowledge of human nature in general must be gathered as all other knowledge worth the name is gathered—from actual contact and traffic and intercourse with other human beings ; and this goes on continually in school without being formally taught.

As by far the most human beings have to earn their livelihood, and as all normal human beings have to administer their means ; and as these are, next to self-preservation from physical dangers, the most important acts and the most necessary to survival that human beings have to perform, I am strongly of opinion that instruction in elementary economics should be given to all children. Economics is a forbidding word, and is generally understood to mean a most difficult and forbidding study ; but I do not mean that children should be instructed in Ricardo's theory of rent, or in Professor Marshall's principle of margins. I mean that when the child is old enough to comprehend the ideas, it should be taught by actual concrete demonstration to realize certain fundamental truths of economics, such as That no want can be satisfied except by work, that is, by the work of some one. That no one can gather, make, or do all that he wants, and that everyone must give what he can gather, make, or do for what he cannot ; that while he is gathering, making, or doing he must live ; and if what he is engaged on takes a long time before it can be consumed or exchanged, that is before he can live on it, he must live on what he has saved or on what others have saved ; that saving is self-denial, and will not be undertaken except for some reward, and therefore when savings are borrowed, they must be returned with something to boot as a reward. In short, to put it in technical terms, that the production of wealth requires the co-operation of labour and capital ; that a world without labour would starve, and a world without capital would be savage ; that the more a man produces, the more he is worth, and the more he will get, provided

that what he produces is wanted ; that what no one wants is worth nothing ; that what everyone can do is poorly paid, and what is best paid is what many want and few can give ; that wealth does not consist in money ; that the circulation of money does not increase wealth, but diminishes it ; that national and municipal funds are not derived from an inexhaustible purse of Fortunatus that fills itself from nowhere, but are collected from the citizens, wasting in the process, to be spent as a trust upon objects beneficial to the citizens ; that the more collected and spent in this way, the less remains in the pockets of the citizens to be expended by themselves or saved ; that it is not spending but saving that brings prosperity to others as well as to ourselves ; that to receive protection and other benefits from the State without contributing to the defence and welfare of the State is as dishonest as to pick a pocket ; and so forth. It seems to me as important to teach young people these things as to teach them the origin of the Punic wars or to enable them to read the obscene plays of Aristophanes.

Among the later studies should be that of the social and political constitution, not of ancient Greek and Roman society, but of the society in which the youth lives, and of which he forms a part. First he must learn to know these conditions as they are, the functions of the village policeman being a concrete instance with which the study may begin. This will lead to a knowledge of the legal system under which we live, the mind being gradually familiarized by concrete instances with the concepts of law, duty, obligation, and right. The election of Parish Council or Town Council will lead to a knowledge of Parliamentary government, and in the course of learning the fabric of society as it exists, curiosity will arise, and should be stimulated, as to the way in which it came to be as it is ; and thus the teaching of History will not be imposed upon an unwilling and uninterested student, but will be supplied as it is asked for and sought by students desiring to know. Obviously, History is a study

that should appear late upon the scene. The concepts involved are not appreciable by young children, and the knowledge usually taught to them under the name of History is worthless trash. It consists almost entirely of the names of kings and the dates of battles. The gradual development of institutions and the advance in the complexity and specialization of social functions and of society itself are quite beyond the comprehension of children.

Two subjects that occupy a very disproportionately prominent position in the existing system of education still remain to be mentioned. These are languages and recreation.

The teaching of languages in schools is based upon a false principle and pursued by a wrong method. Languages, whether ancient or modern, whether dead or living, are taught in schools upon the principle that the acquisition of a language is in itself a desirable end, to be pursued for its own sake. I do not know that this principle is avowed in plain terms. I do not know that any principle is consciously present in the minds of those who settle the scheme of education and conduct the education of children. The whole business is conducted very much at haphazard. But unquestionably this principle, tacit and unavowed, regulates the teaching of languages in schools as it is at present conducted. Language is not an end: it is a means. It is the principal means whereby human beings communicate with one another, and it has no other purpose, use, function, or reason for existence. It is a tool; a most useful and valuable tool; but like other tools it is made for use and not as a final achievement. But it is as a final achievement that languages are taught in schools, and so little does the use enter into the consideration of the teachers, that the method on which languages are taught is such as to render them valueless and to preclude their ever being used. Even in Oxford, the traditional home in this country of the teaching of Latin and Greek, there are probably not three men who can speak either of

the languages that scores of dons have spent their lives over ; and it is sufficiently notorious that those who have learnt French and German for years in our schools can neither speak these languages themselves so as to be understood, nor understand a word of them when they are spoken by a Frenchman or a German. The reason is that they are taught on a wrong principle and by a wrong method. The method is the method of instillation and instruction from without instead of the method of doing. The acquisition of a language by a young child is not difficult, but very easy. The child that begins to learn its mother tongue at twelve months old is able in a few months to express itself perfectly in this new language. The older child grinds away at the grammar of Latin and Greek, French or German, for years and years, and never is able to express itself at all in either language, or to understand it. Of course, if the object of the schoolmaster is, as I believe it is, to exclude utility altogether from the system of education, the reason for the adoption of this silly method of teaching languages, or of pretending to teach languages, is plain enough. It cannot be explained in any other way. If it is desirable to teach foreign languages at school, and for some children no doubt it is desirable, they should be taught by the only efficient method, the method of speaking them and hearing them spoken.

Last and least important of all is the subject to which the system of classical education assigns pride of place and monopoly ; the subject of recreation. The subjects taught in classical schools are exclusively recreations. It is evident that if utility is to be entirely excluded from the school curriculum, the only subjects that can be taught are recreations, and these accordingly monopolize the education in classical schools. The first subject of education in these schools, the subject to which most attention is given and to which most importance is attached, is the game of cricket. Next to this comes the game of football, and at some distance after come the Latin and Greek languages,

which are avowedly taught for the purpose of recreation, not because it is a recreation to learn them, which is far from the case, but because by acquiring them the scholar may have at his disposal a means of recreation. The avowed purpose, which I do not think is the real purpose, of teaching these languages is that the scholar may be able to read what is written in them. As a matter of fact he very seldom indeed takes advantage of this ability even if he acquires it ; but granted that he does acquire the ability, and does read the literature, the occupation is purely recreative. It is the reading of drama, oratory, poetry, satire, history, and philosophy ; and to read these for the sake of the pleasure to be obtained from them is recreation pure and simple.

In my opinion, education should be preparation for life ; and for the vast majority of people life cannot consist solely of recreation ; and even for those for whom it can, recreation is surely a very unworthy object to set up as the sole aim of life. Therefore, instead of making recreation the main, and indeed the sole subject in the curriculum, I should relegate it to a very subordinate position. Still, I think that a complete scheme of education should include some leading of children into rational ways of recreation. I think that they should learn that there are other means of recreation besides cricket and football, and reading Latin and Greek. If they are fortunate enough to possess the musical faculty, it should be stimulated and cultivated. There was a time when it was as necessary an accomplishment for a gentleman that he should be able to take a part in a glee, and to read the music at sight, as to construct an hexameter ; but for some reason the one accomplishment has disappeared, though the other remains. If a child displays curiosity, a book treating of the subject of which he is curious should be supplied to him. Sound and interesting literature within his capacity, and even a little beyond it, should be thrown in his way, but should never be made a task. How many children have not been repelled for life from the glories of

Shakespeare by being compelled at school to go through the stultifying experience of 'studying' one of his plays? No one but a Civil Service Commissioner, a university pundit, or a schoolmaster would dream of compelling boys to read books they cannot understand, illuminated by comments they cannot understand, and enriched with notes on the derivation of words. It is an ingenious plan of making that which was merely uninteresting quickly grow repulsive. Every child should be encouraged to cultivate a hobby, and should have free liberty to choose that which he finds most attractive. All the while he is pursuing it he will be cultivating his faculties, and what is equally important, will be acquiring the methods of rational recreation. It is to some extent recognized, but it is scarcely sufficiently recognized, that the origin of drunkenness is in very many cases emptiness of mind and ennui due to the absence of any rational means of recreation in leisure time. There is no greater safeguard against drunkenness and worse evils than rational interesting recreation. Any tendency on the part of a child to collect natural objects should be warmly encouraged, whether the objects are plants, or parts of plants, shells, insects, fossils, minerals, or what not; nor need the collection be restricted to natural objects. It is better to collect postage stamps than to collect nothing. Collection develops habits of arrangement, order, method, observation, discrimination, comparison, and may, though this matters much less, lead to the acquisition of useful knowledge. It is for the cultivation of faculty and the stimulation of curiosity and interest that collecting is to be encouraged.

The natural tastes, proclivities and abilities of children should be looked for, encouraged, and set free. It is only in the early stage that education should be alike for all. To tie every child down to the same set of subjects is stupid blindness to the differences in human capacity. Any decided proclivity, whether to music, or drawing, or handicraft of any kind, or to devising, or investigating, or to mathematics, or to literary composition, or to

mechanics, or to the study of nature, or even to the study of languages, living or dead, should at once receive encouragement and opportunity for exercise and development. Thus, and thus only can schools fulfil their proper function.

VALEDICTORY

THE answer that all this will receive, if it receives any answer at all, is that it may be all very well, but it is impracticable. This is the most favourable answer that can be expected, at any rate at first ; and the answer, if any is attempted, of the classicists will not be as favourable as this. The scheme, if it is noticed at all, will be called ignorant, stupid, presumptuous, doctrinaire, and by many other hard words, which taken together mean that it is troublesome, that it cannot be carried out by routine, but needs the exercise of thought, ingenuity and industry, and that it is diametrically opposed to the system in use, which is idolized as perfect, and can be very well carried on by machines, or by men who are incapable of thinking. It is not the schoolmasters, however, to whom I make my appeal. Many elementary schoolmasters and schoolmistresses would, I know, welcome any system that should appeal to their reason, and should enable them to give to the children under their care a real education in place of the simulacrum that they receive at present ; but nothing less than moral dynamite will stir the Civil Service Commissioner, the university pundit, or the classical and clerical headmaster. My appeal is made to the parents and the public. They have the matter in their own hands, and they can insist, if they choose, on their children receiving a real education instead of a sham education.

As these sheets are passing through the press, the English-speaking world is horrified by the publication of the Report of the Mesopotamia Commission. A few months

ago it was equally horrified by the Report of the Dardanelles Commission. Such a ghastly exposure of incompetence, of fatuous stupidity, of blindness to the obvious, of happy-go-lucky trusting to wildly improbable chances, has perhaps never before been made in the history of this country, and the men who are guilty of these enormities are one and all men who have been through the orthodox public school and university training. These are the products of the precious system that is still lauded to the skies as the finest system of education the world ever has produced or ever can produce. This is the system that to touch is to desecrate the Sacred Ark of the Covenant, and to bring disaster on the sacrilegious nation that is so impious as to interfere with it ! I affirm with confidence that if the men who have been guilty of such unsurpassable incompetence had been educated at a Board School and trained in business methods behind the counter of a grocer's shop, they would have done immeasurably better. This is what comes of learning to make hexameters, and of gaining acquaintance with the glorious literature of Greece. This is what it is to be a Scholar of Balliol.

No doubt it will occur even to the parents and the public, that such a method of teaching as is here advocated, the teaching by doing, requires a more individualized attention to the children than is now given, and cannot well be given to classes of forty or fifty ; and that this means more teachers. It means also more intelligent teachers ; and the provision of more intelligent and more numerous teachers means increased expense. More must be paid, and better paid. This is true ; but if education is to become efficient and real, if it is to cease to be a sham, if the beginning of real education is not to be deferred until school is left behind, this is what must be done ; and surely it is worth some sacrifice to give a real education to our children. And, moreover, there is a set-off even in the matter of expense. If the children were to receive a real education, the years of school life need not be so prolonged. In the seventeenth century, boys used to go

to the universities at fourteen or fifteen, and even earlier : now they do not go till nineteen or twenty, and when they do go, they know nothing, not even how to learn. But if they received a real education at school, they might again go to the university at fifteen or sixteen, and be ready for the serious business of life at the age at which they now enter the universities. If they received a real education at school, continuation classes and continuation schools would be valuable but unnecessary luxuries. Let me quote Sir Clifford Allbutt again : ‘ Between the ages of fifteen and sixteen the boy undergoes a change. It is not very sharp, but a period of unrest, of new impulses and desires, of vague discontents, and perhaps of fitful naughtiness, intervenes. The boy is ceasing to be purely receptive, he becomes aware of himself ; he begins to outgrow his conditions, to reflect, to compare himself with others, to aim at “ good form,” and consciously so to imitate such models as he has before him that he loses the freedom and sincerity of childhood. This is a perilous age, and then it is good to lift him into a higher and larger sphere ; to give him more scope and responsibility. And with promotion comes a change in the methods of study ; while still practised on the concrete, he should begin to look behind it for a comprehension of principles and laws, and for distinction of these from the contingencies that overlie and mask them.’

All this is profoundly true ; and the obvious corollary to me is that it is at this age that the boy should go to the university if he is to go there at all, or if not, should enter, under proper control and proper tuition, upon the serious business of life. No doubt the university dons would be horrified at first, and would consider it *infra dig.* to teach boys of sixteen ; but if the boys of sixteen had been educated as I would have them educated, they would already know something when they entered the university ; and above all, they would have learned how to learn. In this matter they would be well qualified to teach the university dons themselves.

Are these dreams? Great is the inertia of human nature ; great the power of custom and prescription ; great and formidable the power of the vested interest. It seems to me that, at present, schoolmasters, schoolmistresses, universities, education authorities, the ministry of education itself, all are wandering in the wilderness, and worshipping false gods. I stand like Moses upon Pisgah, viewing afar off the Promised Land that I may never see near at hand, but to which I can point the way. Not, perhaps, in my lifetime, but eventually, I trust, education may find its way out of the stony desert of the classics, and enter into a land flowing with milk and honey. Some day it will be realized that it is by doing, and only by doing, that we learn : it is by doing, and only by doing, that we live.



PUBLISHER'S INVITATION

The Mental Culture Enterprise is open to consider, with a view to publication, works of sterling merit, written clearly and concisely in good English, and calculated to stimulate thought and assist in mental culture, to promulgate new ideas, to advocate new methods of education in science, and to inculcate more efficient modes of action, or to amuse and divert in wholesome ways.

The Enterprise is prepared to assist authors by indicating to them the view likely to be taken by readers, thus anticipating to some extent the benefit to be obtained from careful reviews, and by suggesting such modifications of plan or detail as may obviate objections and enable the work to appeal more forcibly and more directly to the public for which it is intended.

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THE MENTAL CULTURE ENTERPRISE

329, HIGH HOLBORN, W.C. 1.

SPIRITUALISM AND SIR OLIVER LODGE

BY CHARLES A. MERCIER, M.D., F.R.C.P., F.R.C.S.

Price 4s. 6d.

This book is a counterblast to the propagandism of Sir Oliver Lodge. It is prompted by the knowledge of a physician of the harm done to mental health by the pursuit of the occult and of the many evils that follow in the train of this pursuit. Closely printed to save paper in these days of scarcity, it is really a much larger book than it appears to be, but the price will be kept down as long as possible, though it is in everything but paper on the scale of a six-shilling book.

The first question discussed is the competence of Sir Oliver Lodge as an authority on the subject. It is shown that the reason he is so successful and has so many followers is that as a competent investigator of electricity it is taken for granted that he must be equally competent as an investigator of ghosts. The fallacy of this reasoning is exposed over and over again, and it is shown that there is all the difference in the world between a man who works at a scientific subject and a man who works scientifically. In working at spiritualism Sir Oliver Lodge works unscientifically at an unscientific subject.

The second chapter discusses the Grounds of Belief and the Nature of Evidence. It is interesting, but may very well be omitted by those who do not care to go deep.

The third and fourth chapters deal with Evidence of Hearsay, and show the difference between Evidence and Proof, and the precautions that we ought to take before we accept the evidence of a witness. No question of Sir Oliver's honesty is raised, but it is shown that he took almost no precautions against being deceived, and is on his own showing of such a confiding nature that a child could deceive him. The means by which he could have been deceived are clearly shown.

The fifth and last chapter examines the performances of the celebrated Mrs. Piper, and the validity of the inferences that Sir Oliver draws from them. It is insisted

that no credence ought to be attached either to Sir Oliver or to Mrs. Piper until they have been cross-examined, and the lines such cross-examination might take are indicated. It is shown that Mrs. Piper's performances were exactly paralleled three hundred years ago by witches, so that either the witches were genuine or Mrs. Piper is not. Both the witches and Mrs. Piper had familiar spirits that acted in the same way, and the evidence for the genuineness of the witches and their familiars is overwhelmingly greater and more convincing than the evidence in favour of Mrs. Piper and her spirits. In short, that Sir Oliver Lodge now occupies the place occupied in the seventeenth century by Matthew Hopkins, the Witchfinder General. (A book on Witchcraft is in course of preparation.)

PRESS NOTICES

“A searching critical analysis by a leading physician in, and writer on, mental diseases of the causes of error in Sir Oliver Lodge's *Raymond* and of what Dr. Mercier considers to be flaws in his methods, qualifications, opportunities, and precautions; finding parallels in the phenomena of sixteenth century witchcraft.”—*Times* (Literary Supplement), July 12, 1917.

“We do not propose to attempt to set out the contention of the book. To do so would not be fair either to reader or author; the argument is closely knit, and should be followed out as presented. Only this we will say, that a comparison of the evidence for spiritualism with the evidence for witchcraft is brilliantly worked out, and cannot be met by shoulder-shrugging silence—the parallel is too close, and where it ceases the weight of evidence is all for the truth of witchcraft.”—*British Medical Journal*, July 14, 1917.

“Dr. Mercier, who is a well-known author and lecturer on matters mental, is thoroughly qualified in every way for the task undertaken in this volume. Sir Oliver Lodge's propaganda on Spiritualism has not hitherto been opposed by a writer equal in standing and scientific attainments to Sir Oliver himself; having read through this volume, we can only say that in normal times we should have regarded

it as a book worthy of a full column review—so important are the issues dealt with.”—*Sheffield Daily Telegraph*, July 14, 1917.

“. . . May be read with advantage by all who are concerned about the many thousands of people who are going mad as the result of their pursuit of the ‘occult.’ ”

“. . . Lastly, there is the capability of the witness to take into account, and if any unbiassed person reads the last chapter of Dr. Mercier’s book we shall indeed be surprised if he is not convinced that Sir Oliver Lodge’s powers of estimating testimony and interpreting evidence are of a very second-rate nature, and that his pity for those who refuse to accept it is misplaced.”—*English Mechanic and World of Science*, July 13, 1917.

“ Everyone interested in the occult should read Dr. Charles A. Mercier’s *Spiritualism and Sir Oliver Lodge*. It is one of the most lucid, logical, and damning indictments of spiritualism and all its works that has yet appeared ; and, whether accepted or not, should at least cause many people to pull up and ask themselves whither the current craze for the supernatural is leading them.”—*Lady’s Pictorial*, July 12, 1917.

“ Dr. Mercier’s literary exercises are always a source of satisfaction to his readers. Even opponents who suffer from his controversial dexterity cannot but admire the art with which the thrust is delivered. The rapier play is as graceful as it is effective, and the contest to the spectator is pure enjoyment. But not less is the combatant in earnest. The challenge of the lists has a serious purpose and seeks the triumph of a cause, not merely admiration of the tilting. It is this combination of expert skill and lofty motive which raises controversy to a high plane and makes it both an attractive and a helpful agent in the pursuit of truth. In a word, Dr. Mercier in a very special degree combines sincerity of purpose with clear thinking and apt speech, and hence his meaning is never doubtful, whether we elect for conversion or, alternatively, resolve to remain in our sins.”—*The Hospital*, July 21, 1917.

PUBLISHER'S ANNOUNCEMENT

The following works by Dr. Mercier may be obtained from the publishers, The Mental Culture Enterprise, 329 High Holborn, W.C. 1.

IN THE PRESS.

THE IDEAL NURSE

An Address delivered to the Nurses of the Retreat at York, at the opening of the Winter Session of 1909.

This is a lay sermon on the text '*Sursum corda.*' It sets forth the qualifications that make the ideal nurse, and teaches how they may be acquired. It teaches the nurse much that is useful, but is outside the ordinary curriculum. Every nurse should read it on embarking on her career, and every nurse will find it stimulating and comforting in times of depression and weariness. A little pocket volume with limp leather cover and rounded corners, an inseparable companion for every nurse.

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will take the place so long occupied by Herbert Spencer's *Education*, which was translated into every language in Europe and was disseminated throughout the world. That book, chimerical as some of its doctrines are, profoundly modified the methods of education. It has done its work, and the time is now ripe for an advance. The way to this advance is shown by this new book of Dr. Mercier's.

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practice of medical astrology. It is a marvellous achievement. . . . Dr. Mercier could not be dull if he would ; . . . though full of surprises, he never disappoints ; he keeps us all the time on the tip-toe of expectancy, yet far surpasses our wildest hopes. The moment he gets off the chain of these Lectures, he gambols and riots in an ecstasy of fun on the subject of "Saints and Signs."'

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*Author of A New Logic ; Psychology, Normal and Morbid ;
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And all who would write clear, unambiguous, accurate,
vigorous, persuasive English.

No people on earth possesses so perfect an instrument
for the expression of thought as the English-speaking
peoples ; and no people on earth is so careless, so slovenly,
so inefficient in the use of its language as the English.

Incompetence in the use of the English tongue is notorious, is widespread, and is disastrous.

It is notorious.

The language put into the mouth of the King at the opening and closing of Parliament is a standing jest for the incorrectness of its composition.

The English version of the Pronouncement of the Allies, proclaiming to the world their aims in the great war now raging, called forth, even from the daily Press, animadversion on its faulty English.

The judges are constantly complaining, with monotonous and wearisome reiteration, that the Acts of Parliament they have to administer are so badly worded that it is very often impossible to discover their true meaning ; yet the Parliamentary draughtsmen should be the very experts of experts in the Art of Expression. The last Bill that has been brought into the House of Commons at the time of writing this, a Bill presented to the House by the Minister of Education himself, contains the same blunder twice in the first clause of three lines in length.

The *Spectator*, a journal that seeks, and seeks in vain, to inculcate a high standard in the writing of English, calls special attention to the fault of the Government in allowing ‘ forms, regulations, announcements, proclamations, and thousands of other publications to go forth in which there are ambiguities and tautologies, and such vulgar abuses of the English tongue as readers are warned against in every textbook on the elements of literary construction.’ ‘ Bad English appears in every kind of official publication.’ The *Spectator* gives several instances of important official publications in which the writers have used expressions that are either obscure, ambiguous, uncertain, or even the reverse of the meaning that must have been intended, and suggests as a remedy the appointment of a Grand Editor to the Nation, whose duty it shall be to see that all Government publications are at least intelligible, so that offenders shall not be liable to be prosecuted for the breach of regulations that neither they nor anyone else can understand.

Incompetence in the use of the English tongue is widespread. It is almost universal. The teaching of English in our Schools and Universities is so utterly neglected or so utterly incompetent that ability to express thought accurately and clearly in English is become a very rare accomplishment. In addition to the evidence already adduced, consider this :

Five or six years ago the graduates of the University of London, in Convocation assembled, formulated a resolution, discussed it at length, had it put from the Chair, passed it, and published it next morning in all the newspapers ; and this resolution expressed the direct reverse of the meaning its authors intended it to express. It was intended to express a censure upon the Government for its conduct towards schoolmasters, and was couched in terms of considerable severity, yet so ignorant and unskilful were its authors in the art of expressing thought in the English tongue, that the resolution was so worded as to express this censure, not upon the Government, but upon the very schoolmasters themselves who formulated it, discussed it, passed it, and published it. For the graduates who achieved this triumph of incompetence were schoolmasters or schoolmistresses, or were engaged in the profession of teaching. They were not unlettered, uncultured holders of degrees in Science, or Medicine, or Commerce, or Engineering : they were graduates in Arts, the Arts degrees of the London University being highly valued as a recommendation to the more important positions in the profession of teaching. Not one of these graduates but would have been considered disgraced, and would have felt himself disgraced, if the resolution had been in the Latin tongue and had contained an equivalent blunder. Not one of them would have been capable of making such a blunder in Latin. But the study of English is so neglected, and is regarded as of so little importance, that not only was it possible to make the blunder and for all these University graduates to overlook it, but even when it was pointed out by a graduate in Medicine, no outcry arose for the teaching of English : none of the graduates felt

himself disgraced: the matter was passed over with a shrug and a laugh as of no importance at all.

The daily newspapers, one and all, from the mighty *Times* to the *Little Pedlington Gazette*, call the daily reports issued by the belligerents in this war *communiqués*. They are so ignorant of the resources of their own tongue that they are obliged to borrow from the French a word that has several equivalents in English. There is no reason but ignorance why the equivalent expression, announcement, account, or bulletin, or the nearly equivalent and equally appropriate expression, report, description, statement, notice, notification, relation, or proclamation should not be used. Yet we have been fed daily for three years upon *communiqués*.

The rarity of the ability to write good English is notorious and widespread. It is well recognized and universally admitted. It is also disastrous.

It is intolerable to live under laws that are unjust: it is worse to live under laws that are uncertain; and the wording of Acts of Parliament is such that their true meaning remains uncertain until it has been declared by a long series of decisions extending over years. The time of all the Courts of Law is very largely occupied in deciding the meaning of deeds, agreements, contracts, wills, settlements, and other documents whose meaning ought not to be open to doubt, and would not be open to doubt if it were properly expressed. The simple-minded citizen is apt to suppose that if a document is prepared by a solicitor duly qualified to practise, and settled by a barrister duly called to the Bar or within the Bar, that document may be relied upon as the true expression of the mind of the person who executes it, and as an accurate, clear, unambiguous statement of his meaning. If ever he has to enforce it by process of law, he is pretty sure to discover that he has been grossly mistaken; for however learned his professional advisers may be in the law, the chances are dead against their being able to utilize their learning to the best effect by expressing it in precise and unambiguous English.

It is no exaggeration to say that if lawyers were properly trained in the Art of Expression, many thousands of pounds would be saved to litigants every year, fewer judges would be needed, and the law's delay would be sensibly diminished.

It is perhaps in legal business that the common inability to express thought in English is most severely felt ; but it is felt severely in all businesses. The lawyer is often to blame for the inaccurate expression of his own thought, but often he is the innocent victim of the inaccurate expression of his instructions. When he receives instructions in writing, how often can he act upon them without requiring the elucidation of some obscure expression in the instructions received from his client ? And if his client writes obscurely on such an occasion, be sure that he writes obscurely on others. The business communications of business men are full of obscurities and ambiguities : much time is wasted in the correspondence necessary to clear up these obscurities and resolve the ambiguities ; and in business, waste of time is disastrous. While time is wasted the market is missed.

In one day (May 26th, 1917) five defendants in two different police courts pleaded, as an excuse for contravening a Government regulation, that the regulation was unintelligible ; and the magistrates allowed the pleas. With what face can a Government Department punish a subordinate, or the police prosecute a citizen, for not complying with a regulation that is unintelligible, or that may be construed in more than one sense ? Yet how seldom are the instructions and regulations of Government Departments unmistakably clear ! If this is the case with official writings, drafted with care, revised by one official after another, copied in the office, sent to the Press, corrected in the proof, examined in the revise, and scrutinized by the printer's reader, himself presumably an expert, what is to be expected of the unaided productions of the private author ? What is to be expected is what we find, that is to say, blunders so serious and so frequent that they puzzle and annoy the reader, and distract his attention

from the matter expressed. If he does not actually throw the book aside in disgust, as he is often tempted to do, he rises from it fatigued and confused, with no clear notion of what the meaning is.

In many writings, especially writings on abstruse subjects, there is often no meaning at all, and the reader is so habituated to the use of faulty expression, and so unpractised in analysing expressions to discover their meaning, that the want of meaning passes for profundity, and the modest and diffident reader blames his own lack of intelligence instead of blaming the incompetence of the writer.

It matters not what the province of the writing may be, whether it is philosophy, science, art, history, biography, fiction, or what not, the same pervading fault permeates them all ; and some of the writers who have the greatest reputation are among the worst offenders. These are the writers whose style is said to attain ' distinction.' A style of writing that distracts the reader's attention from the matter and attracts it to the manner of expression is a faulty and vicious style. Even if it is grammatically and syntactically faultless, such a style is vicious. The medium of expression should be completely translucent, and though the ornamentation of the glass may be itself beautiful, it is out of place and wrong if it obscures our vision of what we want to see through it. Such ornamentation is to be admired in writing that is professedly ornamental, and expresses emotion, as in poetry ; but in writing that is intended to express thought it is out of place : it is vicious and wrong.

When we consider that readers now comprise the whole population of these islands ; and when we consider the aggregate amount of time spent by them all in reading, and the large proportion of this time that is wasted in trying to extract meanings that are obscurely expressed ; and when we consider also the habit of slipshod thought that is engendered by reading slipshod writing, it is strictly moderate to assert that the common English ignorance of the Art of Expression is disastrous.

The Course of Instruction in the Art of Expression of Thought is designed to supply that teaching that is unobtainable in any of our Schools or Universities. It is designed to teach the writer to express his thoughts in clear, accurate, vigorous, persuasive English. It is written by a master in the art of expression, who is also a deep analytical thinker, and is able to trace the movement of the mind in the reception and expression of thought, so as not only to lay down rules for proper expression, but also to show the psychological principles on which the rules are founded. Thus, the rules are not arbitrary or conventional: they rest upon solid grounds of reason; and the ground is in every case clearly demonstrated. By this method the rules are all interconnected, and as the principles on which they are based are few and plain, both they and the rules are easily remembered.

The Course does not teach grammar. It is assumed that the student can write grammatically before he takes the Course.

It does not formally teach the art of thinking: that is the subject of another Course. But by teaching clear expression, it does materially aid clear thinking, for thought becomes clear in course of being expressed clearly. Much of the value of clear expression lies in the compulsion it puts upon the writer to think clearly. Muddy expression is an infallible indication of muddy thought. Clear expression indicates clarity of thought, and assists clarity of thought.

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The publishers are confident that a perusal of the Course will improve the power of expression of even good writers, and that a thorough mastery of the Course will enable the student to acquire a literary style that in accuracy of expression, in freedom from ambiguity, and in ease of apprehension is impeccable; but it is not pretended that a mere perusal of the Course will do this. There is no royal road to perfection in any art. For the attainment of

perfection, three things are necessary: great natural aptitude, competent instruction, and constant practice. Great natural aptitude for any art is rare, and therefore great artists are rare in every branch of art; but with only moderate aptitude it is possible to attain high efficiency by aid of the two remaining factors: constant practice and competent instruction. Competent instruction without abundant practice is sowing seed upon untilled ground. It will never produce more than a scanty crop. Practice, however frequent and laborious, that is not directed by competent instruction, will never confer excellence in any art. Even in arts as simple as typewriting, as homely as cooking, as common as cricket, efficiency is never acquired by practice alone. With all deference to the dictum of Dogberry, and to the practice of schoolmasters and University authorities, reading and writing do not come by nature. Practice alone will never make a good writer: it must be guided by competent instruction. It is competent instruction that this Course provides.

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